City of Saskatoon

PUBLIC AGENDA
STANDING POLICY COMMITTEE ON ENVIRONMENT, UTILITIES AND CORPORATE SERVICES

Tuesday, August 15, 2017, 9:00 a.m.

Council Chamber, City Hall

Committee Members:

Councillor M. Loewen, Chair, Councillor H. Gough, Vice-Chair, Councillor T. Davies, Councillor S. Gersher, Councillor D. Hill, His Worship, Mayor C. Clark (Ex-Officio)

Pages

1. CALL TO ORDER

2. CONFIRMATION OF AGENDA

Recommendation
That the agenda be confirmed as presented.

3. DECLARATION OF CONFLICT OF INTEREST

4. ADOPTION OF MINUTES

Recommendation
That the minutes of the meeting held on June 12, 2017, be adopted.

5. UNFINISHED BUSINESS

6. COMMUNICATIONS (requiring the direction of the Committee)

6.1 Delegated Authority Matters

[Requests for exemptions under The Noise Bylaw.]

Recommendation
That the request for extension to The Noise Bylaw as outlined in 6.1.1 to 6.1.10 be approved subject to any administrative conditions.

6.1.1 Noise Bylaw Extension, Art in the Park 16th annual Caswell Arts Festival, September 10, 2017, 11:00 a.m. to 5:00 p.m., Ashworth Holmes Park, Raeanne Van Beek, Festival Coordinator [File No. CK. 185-9] 7 - 7

A letter from Jim Goetz, President, Canadian Beverage Association, dated June 14, 2017, is provided.

As background information, the Committee received a presentation from the Council of Canadians regarding safe drinking water at its meeting held on June 12, 2017. Committee resolved that the Administration report back to the Standing

Policy Committee on Environment, Utilities & Corporate Services providing a response to the request that Saskatoon become a "Blue Community" including an outline of the present state of bottled water provision and sale by the City of Saskatoon, and options to phase out its use.

Recommendation
That the information be received and included with a previous referral to the Administration on the same matter.

6.3 Requests to Speak (new matters)

6.3.1 Initiatives to Support Energy-Efficient Building Standards in Residential Construction [File No. 540-1] 46 - 46

A letter requesting to speak from Angie Bugg, member of the Saskatoon Environmental Advisory Committee, dated July 24, 2017 is provided.

Recommendation
That the information be received and that the matter be referred to the Administration.

7. REPORTS FROM ADMINISTRATION

7.1 Delegated Authority Matters

7.2 Matters Requiring Direction

7.2.1 Absence Management and Disability Assistance Services Update [File No. CK. 4655-1 and CP. 4655-001] 47 - 72

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That the one-year pilot program with Bridges Health be extended for an additional one-year to enable a more complete assessment of the benefits of using a third-party vendor to provide disability and/or absence management support.

7.2.2 Hydropower Project – Memorandum of Understanding with the Saskatoon Tribal Council [File No. CK. 2300-1 and SLP 2000-10-6] 73 - 76

Recommendation

That the City Solicitor prepare a Memorandum of Understanding

with the Saskatoon Tribal Council in accordance with the general terms set out in this report for the purpose of studying the financial feasibility of a hydropower project at the Saskatoon weir, and that His Worship the Mayor and the City Clerk be authorized to execute the Memorandum of Understanding under the Corporate Seal.

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That the Administration be given approval for Contract No. 16-0053, Fletcher Road Sewer Upgrades to exceed 25% of the contract value.

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That a Request for Proposals be issued for specialized design services for the scale house and occupied buildings associated with Recovery Park.

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That a pilot program for providing small quantities of compost to residents at no charge, be approved; and
2. That a rate of $15 per cubic yard be approved for bulk purchases of materials from the compost depots, including finished compost, mulch, topsoil and fire logs.

Recommendation
That the Standing Policy Committee on Environment, Utilities

and Corporate Services recommend to City Council:

That Administration continue research and program development on an organics program for the Residential, Industrial, Commercial, and Institutional sectors.

7.2.7 Waste Utility Design Options [File No. CK 7830-1 & CP. 7542-006] 105 - 137

A letter requesting to speak from David McGrane, Saskatoon Environmental Advisory Committee, is provided.

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Administration continue to develop a program to expand the Waste Services Utility to include variable-pricing options; and
2. That the Administration engage citizens and stakeholders on variable-pricing options based on the information presented in this report, and report back in the first quarter of 2018 with a proposed design and timeline for implementation for a utility model.

7.2.8 Water Utility Levels of Service [File No. CK. 116-2, x 7500-1 and PW. 7550-1] 138 - 147

Recommendation

That the information be received and that the current levels of service be maintained.

7.2.9 Storm Water Utility Business Plan [File No. CK. 7560-1 and TS 7820-1] 148 - 208

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Storm Water Utility focus resources on maintenance and preservation of existing storm water assets;
2. That $3 million be maintained in the Storm Water Utility's capital reserve to protect strategic public infrastructure from damage caused by riverbank slumping and other emergency storm water repairs;

3. That the Equivalent Runoff Unit used for Storm Water Management charges be increased by $13.50 annually from 2019 to 2022, and utilized for projects to maintain and preserve storm water infrastructure; and

4. That the temporary Flood Protection Program be extended and phased out by $13.50 annually from 2019 to 2022.

8. MOTIONS (NOTICE PREVIOUSLY GIVEN)

9. GIVING NOTICE

10. URGENT BUSINESS

11. IN CAMERA SESSION (OPTIONAL)

12. ADJOURNMENT

July 11, 2017

His Worship the Mayor
And Members of City Council
222 Third Avenue North
Saskatoon, SK S7K 0J5

Dear Mayor Clark and Members of Council:

Re: Noise Guidelines for Park Special Events

The Caswell Community Association will be hosting our 16th annual arts festival, Art in the Park, noon-5 pm on September 10, 2017 in Ashworth Holmes Park. As this event occurs on a Sunday we are requesting permission to perform sound checks at 11:00 a.m. and begin performances at 12 p.m., outside of the Noise Bylaw hours.

Thank you for your consideration.

Sincerely,

Raeanne Van Beek
306-280-1886
Festival Coordinator
Art in the Park Committee

185-9

RECEIVED
AUG 01 2017
CITY CLERK'S OFFICE
SASKATOON

From: City Council
Sent: August 01, 2017 9:43 AM
To: City Council
Subject: Form submission from: Write a Letter to Council

Submitted on Tuesday, August 1, 2017 - 09:43
Submitted by anonymous user: 142.165.205.168
Submitted values are:

Date: Tuesday, August 01, 2017
To: His Worship the Mayor and Members of City Council
First Name: Robyn
Last Name: Pogoda
Address: 810-601 Spadina Cres E.
City: Saskatoon
Province: Saskatchewan
Postal Code: S7K 3G8
Email: robyn.pogoda@gmail.com
Comments:
I am requesting an extension to the amplified noise application already submitted by the board for art in the park. Our event is taking place in partnership with Art in the Park, happening on September 10th. We are requesting the noise violation be extended to 10am, it has already been approved for a start of 12pm. We will be on site at 10am, same space, same stage, same event venue, same event as Art in the park, however this is an addition to the event after the paper work has already been submitted. We are adding a open public and non-denominational church service starting at 10am. Our website is www.connectchurchyxe.com. I have been informed by the city clerks office, that this is the only avenue that the extension can be granted. I have a letter of support from the organizers of Art in the Park available if needed to support this request. Thank you.

Robyn Pogoda on behalf of Connect Church
306-291-6505
robyn.pogoda@gmail.com
robyn@connectchurchyxe.com

The results of this submission may be viewed at:
https://www.saskatoon.ca/node/398/submission/186549

Attention: Residents & Businesses of Broadway

Broadway will be hosting 34th annual **Broadway Street Fair** on **Saturday, September 9th.**
This event will run from **10 AM – 5 PM** which may contain amplified music / sound. This will cause road closures from 6 AM – 7:30 PM as well.
The road closures will consist of:

- Broadway Avenue: from 8th – 12th
- 11th Street: from the 1st back alley approaching Eastlake Ave – Dufferin
- 10th Street: from the 1st back alley approaching Eastlake Ave – the 1st back alley approaching Dufferin
- Main Street: from the 1st back alley approaching Eastlake Ave – Broadway Ave

We apologize about any inconveniences this may cause.
Thank you for being apart of Broadway!

Sincerely,

The Broadway Business Improvement District
306-664-6463
813 Broadway Avenue
Saskatoon SK, S7N 1B5


12 St E
Eastlake Ave
12 St E
12 St E
Dufferin Ave
École Victoria School
Handmade House
Broadway Theatre
11th
10 St
Amigos Canti
Craft Coun
Main St
Main St
Main
Eastlake Ave
Oskayak High School
9 St E
9 St E
9 St E

THE WORD ON THE STREET

Noise Bylaw Extension Request

June 9, 2017

The WORD ON THE STREET Festival

Saskatoon, SK
Sunday, September 24, 2017
Start: 10:30 AM End: 5:00 PM
Ward 6: Broadway Avenue from 12th Street to Main Street
Broadway Avenue to 1st back ally East – on 11th Street
Dufferin Avenue to 1st back ally west of Broadway Avenue – on 10th Street

Poster/flyer: Not yet available

Previous location: Down town location on 23rd Street and 4th Avenue

Past years: 2012 – 2016

Contact: Jim Hodges, Operations Manager
306-653-2890 jim@roadside-attractions.com
718 Eastlake Ave.
Saskatoon, SK

Cc Silvia Martini, Board President/Chair
WORD ON THE STREET

185-9

From: Anna Erickson <office@forestgrovecc.com>
Sent: June 23, 2017 3:22 PM
To: Web E-mail - City Clerks
Subject: Request for Extension of Bylaw No. 8244
Attachments: 2016- Bylaw extension approved.pdf

Good afternoon,

Forest Grove Community Church is hoping to have an outside worship service in Kinsmen Park on September 3, 2017 at 10:30am until 12:00pm. We will be doing a few sound checks at 9:30 am, but the event will not begin until 10:30am. Our rental contract for a special event requests an extension on the noise bylaw first before approved. We are hoping for around 500 people and then leaving it open for the public to join us if they wish. We would use a microphone so the Pastor could be heard and also have an acoustic guitar and bass guitar for music.

I have attached the approval for this same request last year. If you require any other information please feel free to contact me.

Thanks!

Anna Erickson
Office Administrative Assistant
Forest Grove Community Church
306-933-2266
FOREST GROVE
COMMUNITY CHURCH
502 Webster Street
Saskatoon, SK
S7N 3P9

185-9

Saskatoon Folkfest Inc.
127 B - Avenue D North
Saskatoon, SK.
S7L 1M5

Phone: (306) 931 0100
Fax: (306) 665 3421

www.saskatoonfolkfest.ca

June 9, 2016

Saskatoon City Council
City Clerk's Office
City Hall
Saskatoon, SK S7K 0J5

Ladies and Gentlemen:

Saskatoon Folkfest Incorporated requests that City Council consider approval of an extension to the Noise Bylaw as part of our Canada 150 Celebrations on August 17 – 19. This year, we are moving 18 pavilions to Prairieland Park. Five pavilions will remain indoors, however, we plan to have Indian and Metis, Hungarian, Pakistan, South Sudan, Bangladesh and Chinese pavilions situated on the Park midway area and we will also have entertainment in the Grandstand area. The German Club will remain at their Cultural Centre and 3 other offsite pavilions will at indoor venues.

Please refer to our regular festival hours below and advise us as to the latest time we can have our entertainment programs running:

Thursday, August 17	5:00 p.m. to midnight
Friday, August 18	5:00 p.m. to midnight
Saturday, August 19	3:00 p.m. to midnight

We appreciate your continued support for Folkfest 2016.

Respectfully submitted,

Terri Rau

Terri Rau
Executive Director
Saskatoon Folkfest Incorporated

185-9

From: City Council
Sent: Tuesday, July 25, 2017 12:04 PM
To: City Council
Subject: Form submission from: Write a Letter to Council

Submitted on Tuesday, July 25, 2017 - 12:03
Submitted by anonymous user: 70.64.87.87
Submitted values are:

Date: Tuesday, July 25, 2017
To: His Worship the Mayor and Members of City Council
First Name: Dianne
Last Name: Loraas
Address: 809 32nd Street West
City: Saskatoon
Province: Saskatchewan
Postal Code: S7L 0T5
Email: dianne@hopefellowshipchurch.ca
Comments:
I am the administrative assistant here at Hope Fellowship Church.
We are planning and have been approved to have a community pancake breakfast in the front of our building.
Contract # is 60674
We are requesting an extension to the noise bylaw on Sunday, September 10th in the morning
- from 9:30am to 1pm
thank you
Dianne at Hope Fellowship Church
306-384-4673

The results of this submission may be viewed at:
https://www.saskatoon.ca/node/398/submission/185325

185-9

From: City Council
Sent: July 27, 2017 12:34 PM
To: City Council
Subject: Form submission from: Write a Letter to Council

Submitted on Thursday, July 27, 2017 - 12:33
Submitted by anonymous user: 71.17.43.113
Submitted values are:

Date: Thursday, July 27, 2017
To: His Worship the Mayor and Members of City Council
First Name: Claire
Last Name: Ewert Fisher
Address: Box 97
City: Langham
Province: Saskatchewan
Postal Code: S0K 2L0
Email: claraewertfisher@gmail.com
Comments: Mount Royal Mennonite Church will be hosting an Afternoon in the Park on Sunday, September 10 from 12:00 noon to 3:00 p.m. in the north west corner of Scott Park. This is an event for the community and will include hot dogs, chips, pop and ice cream (probably some veggies as well). We are planning for some soccer as well as musical entertainment for the children in our neighborhood. We are seeking a noise permit for the afternoon. Thanks for your attention to our request. Claire

The results of this submission may be viewed at:
https://www.saskatoon.ca/node/398/submission/185973

185-9

From: Fergusson, Michelle <michelle.fergusson@usask.ca>
Sent: August 02, 2017 2:00 PM
To: Web E-mail - City Clerks
Subject: Noise Bylaw Extension Request and LB5Q
Attachments: LB5Q_2016_Poster copy.pdf

Good Afternoon,
My name is Michelle Fergusson and I am one of the event organizers for LB5Q, I can be contacted by email and cell @ 1-306-421-0296. The other two organizers for this event are Austin Andrusiak (austin.andrusiak@usask.ca) and Alexander Schubert (alexander.schubert@usask.ca).

LB5Q will be taking place in ward 7 at Prairieland Park.

LB5Q will be held Monday, September 11th, 2017. The doors open at 7 pm and close at 9 pm. The event will end at approximately 2 am.

LB5Q is an annual event hosted by the Edwards Business Students' Soicety (EBSS) at the U of S. We hang posters around the university and post majority of the event information on social media. I have attached the poster from last year, as we have not finalized this years. They will look very similar, the only difference will be that dates and that we no longer will have VIP tickets this year. The last 2 years, the EBSS has held LB5Q at Praireland Park. We have had the extension approved in the past. We are happy to monitor the decibels with strict music cut off points as needed.

I look forward to hearing from you.

Kind regards,

Michelle Fergusson

VP Social | Edwards Business Students' Society

Edwards School of Business | University of Saskatchewan

(c) 306.421.0296

(e) michelle.fergusson@usask.ca

www.edwardsbss.com


LB5Q
WORK HARD, PLAY HARD
PARTY HARDER
PRAIRIELAND PARK | SEPTEMBER 12, 2016 | DOORS OPEN 7-9PM
$20
After it's much anticipated and successful return, LB5Q is back and bigger than ever!!! Thousands of students, four DJs and a killer barbecue can be expected at this year's biggest party! Mark your calendars, this is one night you don't want to miss!
TICKETS SALE: ARTS TUNNEL | SEPTEMBER 7 | 10AM
#LB5QPARTYHARDER
REGULAR TICKETS: $20 | VIP TICKETS: $40
(19+)
E B S S
Edwards Business Students' Society
University of Saskatchewan

185 - 9

From: City Council
Sent: Friday, August 04, 2017 1:13 PM
To: City Council
Subject: Form submission from: Write a Letter to Council

Submitted on Friday, August 4, 2017 - 13:13
Submitted by anonymous user: 72.143.232.13
Submitted values are:

Date: Friday, August 04, 2017
To: His Worship the Mayor and Members of City Council
First Name: Chuck
Last Name: Prongua
Address: 215 Wickenden Cres
City: Saskatoon
Province: Saskatchewan
Postal Code: S7N3X7
Email: info@discodogtruck.comp
Comments:
I am seeking permission to allow musical entertainment to play until 2am on Sept 1 and Sept 2, 2017. This will be a licensed food truck event of approx 500 on private property on Broadway Ave on the lot Next to Broadway Roastery. I can be reached at 3068802055.
Thanks,
Chuck

The results of this submission may be viewed at:
https://www.saskatoon.ca/node/398/submission/187833

7920-1

To: Sproule, Joanne (Clerks)
Subject: RE: Blue Communities presentation re: bottled water

From: Lindsey McCulloch [mailto:lindsey@canadianbeverage.ca]
Sent: Wednesday, June 14, 2017 9:41 AM
To: Sproule, Joanne (Clerks) <Joanne.Sproule@Saskatoon.ca>
Subject: Blue Communities presentation re: bottled water

Good morning Ms. Sproule,

Following the presentation from the Council of Canadians at Monday's Policy Committee on Environment, Utilities and Corporate Services, please find the attached letter from Jim Goetz, president of the Canadian Beverage Association.

Please forward the letter and all attached materials to the attention of His Worship Mayor Charlie Clark and all 10 councillors.

Kindest regards,

Lindsey McCulloch
Communications & Public Affairs Advisor
Canadian Beverage Association
T: 416-362-2424 x.11924 | M: 647-210-5527
lindsey@canadianbeverage.ca
www.canadianbeverage.ca

Canadian Beverage Association
Association canadienne des boissons

7920-1

Canadian Beverage Association
Association canadienne des boissons

June 14, 2017

City of Saskatoon
Mayor and Council
City Hall
222 Third Ave. N
Saskatoon, SK S7K 0J5

RE: Council of Canadians' Blue Communities presentation

Dear Mayor Clark and City Council,

On behalf of more than 150 citizens employed by the beverage industry in the City of Saskatoon and the surrounding area, I am writing to you to express concern with the proposal to become a Blue Community as presented at Monday's Policy Committee on Environment, Utilities and Corporate Services meeting by the Council of Canadians. Specifically, the consideration to ban the sale of bottled water at city-run facilities and events.

Unfortunately, municipal ban proposals such as this can contain incorrect information regarding the environmental sustainability of PET beverage containers, "plastic water bottles," which maligns both our industry and our products.

To help correct this misconception, I would like to provide Council with the following information on bottled water and the beverage industry. There is significant misinformation about bottled water in the public domain and we hope the facts and figures below will answer any questions you have about this safe and healthy product.

Plastic water bottles are 100% recyclable and are recycled at high rates across the country:

- PET containers are one of the most recyclable consumer packaged product available in the Canadian market place.
- Contrary to popular myths and misconceptions, PET water bottles can be **repeatedly recycled and re-used** to produce new PET bottles in a very energy efficient manner.
- Recycled PET is one of the most valuable materials found in the recycling stream. When sold as a commodity, recycled PET generates significant revenue which helps to offset a portion of *municipal recycling costs*.
- Visit https://www.recyclesaskatchewan.ca/products/beverage-containers to learn more about the recyclability of PET water bottles in Saskatchewan.

Bottled water does not compete with tap water:

- Research shows that bottled water does not compete against tap water, rather it competes with other bottled beverages. For many, bottled water provides portability and convenience.
- We support a consumer's right to choose the beverage that meets their needs and preferences, whether that is tap or bottled water or a combination of both.

20 Bay St WaterPark Place, 11th Floor Toronto ON M5J 2N8 Tel: (416) 362-2424 Fax: (416) 362-3229
www.canadianbeverage.ca

Bottled water is produced in environmentally smart and efficient ways:

- According to Environment Canada, our entire industry uses just *9/100th of 1 per cent (0.009%) of all annual water withdrawals in Canada.*
- The per capita annual consumption of bottled water in Canada equals one 3-minute shower using a standard shower head.[1]
- It takes:[2],[3]
  - 1.3 litres to produce 1 litre of spring water (this includes the water in the bottle)
  - 35 litres of water to produce a cup of tea
  - 75 litres of water to produce a glass of beer
  - 120 litres of water to produce a glass of wine
  - 140 litres of water to produce a cup of coffee
- Our members continue to invest in new science and technology to improve water quality, production efficiencies and water conservation practices.

Bottled water is a convenient, sustainable and healthy hydration choice for Canadians. We do not believe that it should be about one or the other rather we believe that there is a place for both municipal tap water and bottled water.

Moving forward, we welcome future dialogue to discuss the ways our industry can work with the City of Saskatoon to increase beverage container recycling. It is our industry's goal to ensure Canadians are provided the most accurate and up-to-date information on our products in order to make informed beverage choices.

If we can help answer any questions or provide further information on bottled water and our industry, please do not hesitate to contact me or visit our website at www.canadianbeverage.ca.

Sincerely,

Jim Goetz
President
Canadian Beverage Association
jim@canadianbeverage.ca

C.C. Joanne Sproule, City Clerk

Encl. CBA Bottled Water Brochure
2010 City of Hamilton Public Works Report on bottled water
2011 City of Port Alberni Parks and Recreation Report on bottled water

[1] Environment Canada http://www.ec.gc.ca/eau-water/default.asp?lang=En&n=F25C70EC-1
[2] Agriculture & Agri-food Canada. "The Canadian Bottled Water Industry." 25 Mar. 2009. < http://www4.agr.gc.ca/AAFC-AAC/display- affich er.do?id=1171644581795&lang=eng>.
[3] http://www.ifad.org/english/water/key.htm

7920-1

The facts are clear

Bottled water does not compete with tap water. 91% of bottled water drinkers consume tap water at home and bottled water on the go.[2]

Bottled water is **held to the same high quality standards** as municipal tap water and is strictly regulated by Health Canada and the Canadian Food Inspection Agency (CFIA).[3]

The Canadian bottled water industry represents **only 0.009%** of total water withdrawals in Canada.[1]

Recycling PET beverage containers is a crucial component to creating a circular economy and reducing greenhouse gases. For example, recycling enables the use of recycled PET (rPET) into new packaging. **This reduces the energy footprint of PET packaging by 70%.**[6]

PET bottles are 100% recyclable and can be recycled over and over again. A reusable water bottle will have to be used an average of 80 times before it has a carbon footprint lower than that of a single use bottle.[4]

Plastic water bottles are one of the most-recycled products in Canada. When recycled, PET is used to make playground equipment, automobile parts, carpeting, fleece clothing, sleeping bags, shoes, luggage, and other plastic containers.[5]

The average recovery rate in Canada for beverage containers is 75%. This high recovery rate supports recycling jobs across the country.

The Canadian beverage industry recognizes and supports increased investment in municipal water and sewer infrastructure by all levels of government so that each and every Canadian citizen has access to a safe and secure supply of tap water.

Based on data from Statistics Canada and Stewardship Ontario, plastic beverage containers account for less than 0.2% of the total wastes disposed in Ontario, and plastic water bottles account for less than half of that.

PET is approved by Health Canada and does not contain any chemicals that leach into the product.[7]

According to Agriculture and Agri Food Canada, bottled water does not compete with tap water but only with a variety of cold beverages, such as carbonated soft drinks and juices.[8]

The beverage industry is an environmental leader in the consumer packaged goods industry and was instrumental in establishing Canada's first province-wide blue box program in Ontario in 1986. The beverage industry continues to fund and manage innovative recycling programs to increase beverage container recycling across Canada through industry-led efforts such as the *Recycle Everywhere* program in Manitoba, and Encorp Pacific's *Return It* campaign in British Columbia.

The Canadian bottled water industry is an efficient user of its water source. It takes only 1.3 litres of water to make 1 litre of bottled water.[8]

1. Withdrawal information from Environment Canada, 2013. Bottled water volume from Canadean, Soft Drinks Market Digest 2015.
2. Probe Research Inc. July 2012.
3. Health Canada. Food and Nutrition, Questions and Answers on Bottled Water. December 15, 2013.
4. CIAL Group. Lifecycle Carbon Footprint Analysis of Bottled Water (2008).
5. Stewardship Ontario. 2007.
6. National Association for PET Container Resources (NAPCOR). Life Cycle Inventory of 100% Postconsumer HDPE and PET Recycled Resin. 2010
7. Health Canada. Food and Nutrition, Questions and Answers on Bottled Water December 15, 2013.
8. Agriculture & Agri-food Canada. The Canadian Bottled Water Industry. 25 Mar 2009.

Canadian Beverage Association

www.canadianbeverage.ca

7950-1

Hamilton

CITY OF HAMILTON

COMMUNITY SERVICES DEPARTMENT
Recreation Division

and

PUBLIC WORKS DEPARTMENT
Environment & Sustainable Infrastructure Division

TO: Mayor and Council Committee of the Whole	**WARD(S) AFFECTED:** CITY WIDE
COMMITTEE DATE: April 13, 2010	
SUBJECT/REPORT NO: Bottled Water (CS10035/PW10035) (City Wide) Committee of the Whole Outstanding Business	
SUBMITTED BY: Joe-Anne Priel General Manager Community Services Department Gerry Davis, CMA Acting General Manager Public Works Department	**PREPARED BY:** Coralee Secore 905-546-2424, Extension 4689 Dan McKinnon 905-546-2424, Extension 5941
SIGNATURE:	

RECOMMENDATION

(a) That the General Managers of Public Works and Community Services be authorized to implement a strategy which reduces reliance on bottled water at City facilities and events. The strategy entails:

(i) A social awareness campaign to educate residents and consumers about the value and safety of municipal drinking water, the environmental implications of non-recycled Polyethylene Terephthalate (PET) bottles and the importance of source water and watershed protection;

(ii) Continuing to sell bottled water at City Recreation facilities but at the same time increasing access to municipal drinking water wherever possible.

(b) That the item respecting "Correspondence from Refreshments Canada respecting bottled water and support of a broader sustainability program" be lifted from the Outstanding Business List on the Committee of the Whole Agenda.

EXECUTIVE SUMMARY

On September 24, 2008, Hamilton City Council received correspondence from Justin Sherwood, President of Refreshments Canada regarding bottled water. Refreshments Canada is a national association representing many brands and companies that manufacture and distribute non-alcoholic beverages including several bottled water brands. The correspondence states that bottled water is not intended to replace municipally supplied water but rather offers consumers an additional choice based on preferences, taste and convenience. Council referred the correspondence to the General Managers of Public Works and Community Services for a report to the Public Works Committee and then to the Emergency & Community Services Committee. Since that time, the item was then moved to the Committee of the Whole Outstanding Business list.

The City of Hamilton sells bottled water, as well as other food items and beverages, at a number of City-owned facilities. Recently there has been a significant amount of attention on the issue of bottled water and specifically the environmental implications of discarded plastic bottles and the perception of confidence in the municipal drinking water system. As a result, municipalities have responded in a variety of ways, ranging from creating outreach programs to banning the sale of bottled water at City facilities. In response to a number of inquiries from the public and communication from Refreshments Canada, staff prepared recommendations to respond to this issue.

Staff at the City of Hamilton recommend an approach which supports the principles underlying the Association of Municipalities of Ontario (AMO) and the FCM resolution, namely reducing reliance on bottled water. At the same time, Hamilton will leverage existing initiatives which demonstrate its ongoing commitment to being environmentally responsible with respect to waste reduction, recycling and watershed protection.

The strategy to reduce reliance on bottled water at City facilities and events entails a social awareness campaign, continuing to sell bottled water but at the same time increasing access to municipal drinking water in City Recreation facilities and finally, developing plans for other corporate facilities, locations and events to facilitate access to municipal drinking water.

Alternatives for Consideration - See Page 11

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial:

Financial costs can be funded within existing Environment & Sustainable Infrastructure outreach budgets. The creation and dissemination of outreach materials by Public Works are projected to be less than $20,000. Where municipal water is available but not easily accessed, capital upgrades may be undertaken to improve access in City of

Hamilton facilities. This could include the addition of water fountains/filling stations at an approximate cost of $3,000 per unit installed. A review of indoor facilities to determine requirements will be undertaken and water stations may be added to existing and new capital infrastructure projects over time. Finally, the sale of refillable bottles will be available, where feasible, on a cost recovery basis and with no planned operating budget impact.

Staffing:

There are no additional staffing implications to implement the recommendations in the report. Existing staff in Public Works will include it as part of their ongoing social marketing initiatives. Similarly, Community Service's Recreation Division will undertake a review of indoor facilities to determine requirements and as facilities are renovated filling stations will be addressed.

Legal:

There are no legal implications.

HISTORICAL BACKGROUND

The bottled water industry has grown rapidly in Canada. Statistics Canada reports that domestic sales of bottled water, less than 18 litres in size, were in excess of $280 million in 2002 and upwards of $430 million in 2006.

At the same time, environmental advocacy groups are concerned with the environmental costs of bottled water. Concerns include watershed protection, creation of waste and the loss of confidence in public water systems.

The debate has many stakeholders and has attracted significant attention. As a result, municipalities and agencies have considered a variety of strategies and options to address the bottled water issue. According to the Polaris Institute (an organization engaged in citizen movements for social change), at the present time, 39 municipalities in Ontario have implemented restrictions on the use of bottled water in municipal facilities.

The bottled water industry has reacted to the growing trend whereby municipalities have taken action to limit the sale of bottled water and support the use of municipal drinking water by residents and visitors. On September 24, 2008, Hamilton City Council received correspondence from Justin Sherwood, President of Refreshments Canada, regarding bottled water. Refreshments Canada is a national association representing many brands and companies that manufacture and distribute non-alcoholic beverages including several bottled water brands. The letter outlined facts about bottled water in response to various reports and proposals coming before Municipal Councils in Ontario. Sherwood believes that bottled water is not intended to replace municipally supplied water but rather offers consumers an additional choice based on preferences, taste and convenience. Council referred the correspondence to the General Managers of Public Works and Community Services for a report to the Public Works Committee. On April 20, 2009, the item was referred to the Committee of the Whole Outstanding Business List (item L). See Appendix A for a copy of the correspondence from Justin Sherwood.

On February 3, 2009, the Association of Municipalities Ontario (AMO) released a memo to members reinforcing its long standing position of promoting municipal drinking water. AMO encouraged members to contact the 13 Ontario municipalities who have taken action to limit the use of bottled water in municipal facilities and support the use of municipal drinking water by residents and visitors. See Appendix B for a copy of the AMO release.

On March 7, 2009, the Federation of Canadian Municipalities (FCM), which is Canada's national municipal organization, issued a resolution urging "all municipalities to phase out the sale and purchase of bottled water at their own facilities where appropriate, and where potable water is available and that municipalities be urged to develop awareness campaigns about the positive benefits and quality of municipal water supplies". See Appendix C for a copy of the FCM release.

On March 12, 2009, Hamilton City Council received correspondence from the Polaris Institute regarding alternatives to bottled water. The correspondence encouraged the City to support public water by actively encouraging the consumption of drinking water over bottled water. Council referred the item to Public Works, in conjunction with the related and previous outstanding business item.

On April 20, 2009, the item respecting bottled water was transferred from the Public Works Committee to the Committee of the Whole outstanding business list.

Staff from Public Works and Community Services, Recreation Division have met to review the correspondence and started to research the positions taken by other Ontario municipalities concerning the sale and purchase of bottled water. Further investigation was required to weigh all the options at hand.

POLICY IMPLICATIONS

Corporate Strategic Plan

Waste reduction and recycling programs increase waste diversion in pursuing our target of 65% diversion in Performance Measure 6.5 of Focus Area 6 Environmental Stewardship.

Solid Waste Management Master Plan (SWMMP)

The following policy of the Solid Waste Management Master Plan (SWMMP) is affected by the social marketing approach proposed for plastic water bottles:

> Recommendation #2 - "*The Glanbrook landfill is a valuable resource, and the City of Hamilton must optimize the use of its disposal capacity to ensure that there is a disposal site for Hamilton's residual materials that cannot be otherwise diverted.*"

Improved awareness and better management of polyethylene terephthalate (PET) bottles can contribute to waste reduction, recycling and a reduction in the amount of waste sent to landfill.

RELEVANT CONSULTATION

Public Works Department, Environment and Sustainable Infrastructure Division

Public Works Department, Operations and Waste Management Division

Public Health Services, Healthy Living Division

Community Services, Culture Division

ANALYSIS / RATIONALE FOR RECOMMENDATION

The AMO correspondence and the FCM resolution, which was put forward by the cities of Toronto and London (Ontario), brought attention to the environmental impact related to the production of bottled water. While the resolution does not call for a ban on the sale of bottled water to consumers, it does emphasize that "all orders of government must work together to reduce reliance on a product which produces more waste, costs more and uses more energy than simple, dependable municipal drinking water".

Other Community Approaches

It is undeniable that many municipalities have rallied around the issues raised by the FCM. According to the Polaris Institute, at the present time, 39 municipalities in Ontario have implemented restrictions on the use of bottled water in municipal facilities. The approaches have varied, ranging from creating outreach programs to banning the sale of bottled water at City facilities.

Banning bottled water is intended to reduce the amount of waste and litter created by discarded plastic (PET) single-use water bottles. The approach is coupled with encouraging consumers to use the municipal water supply, thereby reducing the amount of water being bottled and transported outside the watershed from which it came. Cities that have implemented bans have since faced a few challenges.

For example, in Toronto, where a ban took effective immediately, implementing the ban has been problematic. Contracts with concession and drink machine vendors were not reviewed before the decision to ban was made. Similarly, the cost of making municipal drinking water available at all City of Toronto locations and event sites was not considered.

Other municipalities have chosen to phase in a ban by reducing the sale and use of bottled water wherever possible (i.e.: where an accessible municipal water source exists). For example, the Town of Ajax is phasing out the sale of bottled water at Town owned facilities and events as existing vending and concession agreements expire. Ajax will also increase access to municipal drinking water through the installation of water fountains.

Since the Cities of Toronto and London (Ontario) banned bottled water, companies have introduced flavoured water products to replace plain bottled water. The new category of beverage circumvents a ban and as a result, perpetuates the issues associated with bottled water sales.

The experiences of our municipal neighbours give the City of Hamilton insight into the many and complex issues at hand. More importantly, the City of Hamilton acknowledges the philosophical merit of reducing reliance on bottled water.

The City of Hamilton's Approach

Staff at the City of Hamilton recommend a strategic approach which supports the principles underlying the FCM resolution, namely reducing reliance on bottled water. At the same time, Hamilton will leverage existing initiatives which demonstrate its ongoing commitment to being environmentally responsible with respect to waste reduction and watershed protection.

The strategy to reduce reliance on bottled water at City facilities and events entails a social marketing campaign, continuing to sell bottled water but at the same increasing access to municipal drinking water in recreation facilities and finally, developing plans for other corporate facilities, locations and events to facilitate access to municipal drinking water.

Social Marketing Campaign

The City's social marketing campaign will educate residents and consumers about the value and safety of municipal drinking water, the environmental implications of non-recyclable bottles and the importance of source water and watershed protection.

Existing staff in the City's Public Works Department work with a number of agencies to create awareness about waste and litter reduction, recycling, water conservation and the value of municipal water. Partnerships with agencies such as Green Venture, the school boards, and community organizations continue to be effective ways for the City to advocate for environmental responsibility in this regard. Public Works conducts outreach to the community with the goal of environmental stewardship as it relates to waste reduction and water conservation.

Due to the FCM resolution regarding bottled water, it is recommended that the Public Works Department through its outreach and promotional programs include messaging about waste and litter reduction, use of refillable water bottles and use of municipal drinking water.

In keeping with the FCM resolution, the awareness campaigns should also promote the positive benefits and quality of municipal water sources. Although the general perception of municipal water has improved in recent years there is still merit to increasing awareness about its safety, reliability and value.

Ontario has the highest standards in the world related to drinking water. Strict monitoring, sampling, and testing procedures and regulations, have created an extremely safe and reliable system. Locally, Hamilton enjoys the benefit of high quality raw water sources and filtration systems that produce water well in excess of the standard. Hamilton consistently provides water to its citizens that is affordable, reliable, and safe. Through increased social marketing, the City would be promoting a reliable alternative to bottled water.

Continuing to Sell Bottled Water

The FCM resolution does not call for ban on the sale of bottled water to consumers but it does urge municipalities to phase out the sale and purchase of bottled water at their own facilities where appropriate, and where potable water is available.

There is no evidence that a ban on bottled water will achieve the desired outcomes of reducing reliance on bottled water, namely reducing waste and litter, adversely affecting watersheds and encouraging people to choose municipal water.

Other bottled beverages exist and we do not know if a ban will influence consumers to switch from single-use bottled water to municipal drinking water. Some consumers may switch to municipal drinking water, while others may purchase a less healthy beverage in a single-use container, which still creates waste and litter and may adversely affecting the water shed (e.g.: water may still be exported outside its watershed by use for beverage companies). Therefore a ban on bottled water may inadvertently have negative health and environmental consequences.

Encouraging people to choose municipal water is best achieved through a social marketing campaign and increasing access to municipal tap water, and not by banning bottled water.

Increasing Access to Municipal Drinking Water at City Facilities

The City of Hamilton sells bottled water, as well as other food items and beverages, at a number of City-owned facilities. Most bottled water sales occur within the City's Recreation division facilities. As a result, staff recommend starting the initiative first within the Recreation facilities and then conduct a review of other Corporate facilities, locations and events.

Ensuring that municipal drinking water is an easily accessed alternative to bottled water at all possible Recreation facilities entails:

- Installing water fountains and/or water filling stations at new and existing facilities as needed as part of renovation projects;
- Selling refillable water bottles at facilities, concession stands and vending machines and encouraging people to reuse or bring their own water bottles.

Next, staff recommends that the City review other corporate facilities, locations and events which need to implement plans to facilitate access to municipal drinking water. In order to implement the strategy, the Public Works Department, in consultation with other departments will set the scope, which may include civic centres, office or yard locations. Council, committee, public and staff meetings will also be considered as part of the strategy to reduce the reliance on bottled water. Additional approaches may be warranted such as promoting the use of mobile water tankers at City events.

Hamilton's Ongoing Commitment to Environmental Responsibility

Instead of an outright ban on bottled water, the City of Hamilton will continue with its existing initiatives which demonstrate its long-standing commitment to environmental responsibility, relating to waste reduction and watershed protection.

The descriptions below along with the social marketing initiatives explained above illustrate the extent to which existing initiatives are being leveraged within the context of the bottled water issue.

More importantly, the work looks beyond bottled water and has a greater impact than simply banning bottled water.

Waste and Litter Reduction

Although PET bottles are recyclable, large quantities make their way into our landfill at Glanbrook and the environment. Banning bottled water may not persuade users to switch to municipal drinking water in reusable containers. Consumers may only switch from bottled water to another beverage in a single-use container which will continue to burden landfills or create litter.

A better solution is to continue with the Operations & Waste Management Division's initiative of advocating for a more comprehensive approach to litter reduction. Recent discussion papers from the federal and provincial governments are moving toward the implementation of Extended Producer Responsibility (EPR) regulations relative to a zero waste future. EPR proposed under the Waste Diversion Act, if implemented, could reduce the amount of PET bottles and other recyclables being produced through the implementation of producer responsibilities that may include deposit/return systems.

The City has actively, although conditionally supported the efforts around the EPR regulations which have the potential to reduce PET bottles being recycled or landfilled. Since 2007 the Operations & Waste Management Division has submitted five reports that promoted EPR and has sent these reports to the Ministry of the Environment, Association of Municipalities of Ontario, Regional Public Works Commissioners of Ontario, industry associations, and members of parliament. These reports, starting with the most recent, are:

- PW10007 - From Waste to Worth: The Role of Waste Diversion in the Green Economy, A Minister's Report on the Review of Ontario's Waste Diversion Act, 2002 (Jan. 18/10)
- PW08146 - Toward a Zero Waste Future: Review of Ontario's Waste Diversion Act, 2002 - Discussion Paper for Public Consultation, October 2008, Ministry of the Environment (Dec. 1/08)
- PW08044 - Association of Municipalities of Ontario (AMO) and Association of Municipal Recycling Coordinators (AMRC) Discussion Paper For An Alternative Approach to Ontario's Blue Box Funding Model (Feb. 08)
- PW07088/LS07009 - Association of Municipalities of Ontario (AMO) and Association of Municipal Recycling Coordinators (AMRC) Discussion Paper on the Five (5) Year Review of the Waste Diversion Act, 2002 (Apr. 07)
- PW07042 - AMO/AMRC Discussion Paper on Strengthening Extended Producer Responsibilities for Ontario's Blue Box (Feb. 07)

Watershed Protection

The primary concern raised with respect to watersheds is the use of water from watershed resources by water bottling companies for export outside of the watershed.

Water is also exported for use in other industries including beverage, food products, cosmetics, and cleaners. In consideration of the global economy and the reality that everyday virtual water export from watersheds is widely accepted, staff is of the opinion that this issue would not change significantly by a municipal bottled water ban.

It is now more widely recognized that large scale groundwater withdrawals may have significant and detrimental effects on watersheds. The permitting of new and/or increased withdrawals from watersheds may be occurring in the absence of a complete understanding of the consequences.

The City of Hamilton's Environment & Sustainable Infrastructure Division has membership on a number of committees devoted to source water protection. Under the Clean Water Act of 2006, local Conservation Authorities were given lead responsibility as Source Protection Authorities for establishing integrated watershed management committees. Hamilton monitors or participates on three of these committees. As a result, Hamilton participates in developing source water protection plans and criteria for the future regulation governing source water (ground and surface) withdrawals and watershed exports. It is expected that these committees will have significant influence with the creation of watershed protection and management legislation.

The source water protection committees that will develop source protection plans for the Hamilton area are expected to complete their plan by 2012. When these plans are complete, the City will need to move quickly to establish local bylaws and zoning to be incorporated into the City's official plan so it can regulate water withdrawals and protect local watersheds. It is believed that locally developed plans and regulations will be more effective at protecting the watershed and helping the recovery of areas already experiencing water stress.

In 2008, the Provincial government moved, under Ontario Regulation 450/07, to impose a charge on water withdrawals of $3.71 per million litres to be implemented in 2009. These charges are also imposed on property owners who draw water from municipal water systems and meet the criteria of the regulation with respect to daily consumption and use. In the case of ground water withdrawals, it is widely believed that the Province should increase these charges to more accurately reflect the value of these water resources to the surrounding communities and the watershed.

ALTERNATIVES FOR CONSIDERATION

The City could implement a ban on the sale of single-use bottled water at municipally-owned facilities where easy access to municipal water exists. However, this option has not been overly successful in the peer review with other municipalities. There is little evidence that it would be effective at reducing waste and litter or increasing the use of the municipal water system. In addition, it may result in less healthy choices for consumers.

CORPORATE STRATEGIC PLAN

Focus Areas: 1. Skilled, Innovative and Respectful Organization, 2. Financial Sustainability, 3. Intergovernmental Relationships, 4. Growing Our Economy, 5. Social Development, 6. Environmental Stewardship, 7. Healthy Community

1. **Skilled, Innovative & Respectful Organization**
   - A culture of excellence
   - More innovation, greater teamwork, better client focus
   - Council and SMT are recognized for their leadership and integrity
2. **Financial Sustainability**
   - Financially Sustainable City by 2020
   - Effective and sustainable Growth Management
   - Delivery of municipal services and management capital assets/liabilities in a sustainable, innovative and cost effective manner
   - Address infrastructure deficiencies and unfunded liabilities
3. **Effective Inter-governmental Relations**
   - Influence federal and provincial policy development to benefit Hamilton
   - Maintain effective relationships with public agencies
4. **Growing Our Economy**
   - Competitive business environment
   - An improved customer service
   - A visitor and convention destination
5. **Social Development**
   - Residents in need have access to adequate support services.
   - People participate in all aspects of community life without barriers or stigma
6. **Environmental Stewardship**
   - Natural resources are protected and enhanced
   - Reduced impact of City activities on the environment
   - Remove Hamilton Harbour from Great Lakes area of concern list by 2015
   - Reduce the impact of Hamilton's industrial, commercial Private and Public operations on the environment
   - Aspiring to the highest environmental standards
7. **Healthy Community**
   - Plan and manage the built environment
   - An engaged Citizenry
   - Adequate access to food, water, shelter and income, safety, work, recreation and support for all (Human Services)

APPENDICES / SCHEDULES

Appendix A: Correspondence from Justin Sherwood
Appendix B: AMO Release
Appendix C: FCM Release

Hamilton

City of Hamilton
City Centre, 77 James Street North
Hamilton, Ontario,
Canada L8R 2K3
www.hamilton.ca

City Clerk's Office, Corporate Services
Physical Address: 77 James St. N., Suite 220
Phone: 905.546-4408 Fax: 905.546-2095
Email: clerk@hamilton.ca

September 26, 2008

Mr. Justin Sherwood, President
Refreshments Canada
885 Don Mills Road, Suite 301
Toronto, ON M3C 1V9

Dear Mr. Sherwood:

Re: Bottled Water

Council, at its meeting held September 24, 2008, considered your letter dated August 28, 2008, respecting the above matter.

Please be advised that Council has received this correspondence and referred it to the General Managers of Public Works and Community Services for a report to the Public Works Committee.

Should you wish further details regarding the Public Works meeting, please contact Mrs. Carolyn Biggs at 905-546-2424, ext 2604 or cbiggs@hamilton.ca.

Yours truly,

Rose Caterini, B.Comm, AMCT
Deputy City Clerk/Manager of Legislative Services

:sr

File: 08-020

c.c. Scott Stewart, General Manager, Public Works
Joe-Anne Priel, General Manager, Community Services
Carolyn Biggs, Legislative Assistant, Public Works Committee
Stephanie Paparella, Legislative Assistant,
Emergency and Community Services Committee

CC: Clerks

Refreshments Canada
Boissons rafraîchissantes

SEP - 3 2008

5.13

August 28th, 2008

Re: Bottled Water

Dear Mayor and Councillors:

Refreshments Canada is the national association representing the broad spectrum of brands and companies that manufacture and distribute the majority of non-alcoholic refreshment beverages consumed in Canada, including several bottled water brands.

In the last few months a great deal of misleading and inaccurate information regarding bottled water has been circulated by a number of parties. Unfortunately some of this misinformation appears to be getting captured in various reports and proposals coming before Councils such as yours.

Refreshments Canada wants to ensure that you have the facts before you, should this issue arise in your community.

To that end, Refreshments Canada is pleased to provide you with a copy of our new information brochure regarding bottled water. It provides the facts around bottled water usage, beverage safety, packaging and energy use. The brochure also addresses some of the myths being circulated about bottled water, and provides you with some key statistics.

Above all, we wish to highlight that bottled water provides consumers with a healthy, safe, convenient, portable and refreshing beverage option. Bottled water is not intended as a replacement to municipally supplied water, but rather it is simply about offering consumers an additional choice based on preferences, taste and convenience.

All consumer products and packaging have environmental implications (from energy used to produce and transport the products, to the end-of-life recycling or disposal of the product and/or packaging). As you know, the issue of sustainability is complex. In looking to encourage the citizens and businesses of Hamilton in more sustainable practices, we would suggest that the City focus on broader strategies surrounding conservation and recycling, and not unjustly target a single product category.

Refreshments Canada would welcome the opportunity to have further discussions with you, your Council and/or your municipal staff regarding bottled water and how we can support a broader sustainability program. Please feel free to contact me at my email address listed below.

Sincerely,

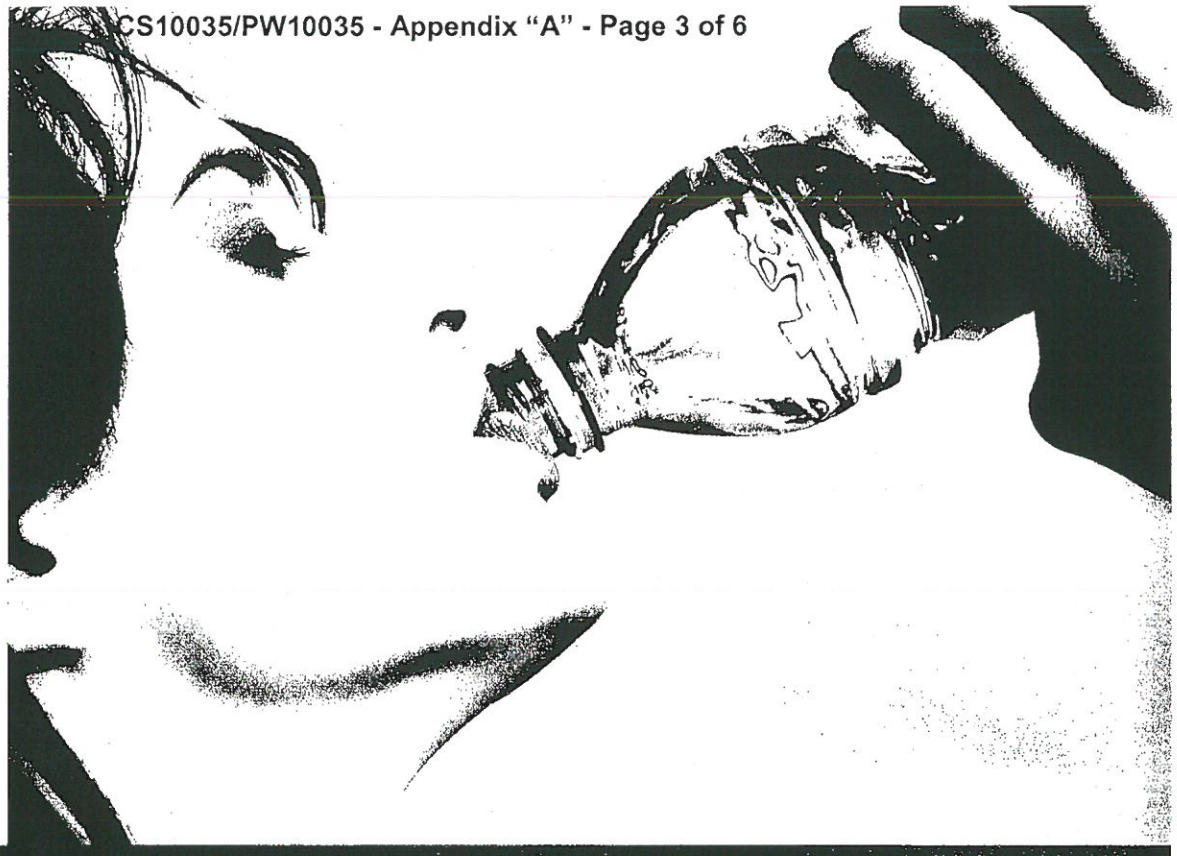
Justin Sherwood

Justin Sherwood
President
Refreshments Canada
Email: justin@refreshments.ca

JS/avh: 2008/08/28 Water bottled mailer RCltr20080828 Hamilton Council.doc

885 Don Mills Rd Suite 301 Toronto ON M3C 1V9 Tel: (416) 362-2424 Fax: (416) 362-3229
www.refreshments.ca

www.refreshments.ca



Bottled Water:

A Healthy Hydration Choice

"The bottled water industry in Canada uses less than 1/100th of 1% (or less than 0.01%) of all annual water withdrawals in Canada."

Did you know that the beverage industry's extensive quality and safety testing procedures result in products that meet or exceed all Canadian regulatory requirements?

Bottled Water is a Healthy Hydration Option

Maintaining proper hydration is essential to our health. Refreshments Canada and its members are proud to provide Canadians with a wide variety of beverages including bottled waters, juices, iced teas, sport drinks and soft drinks. We believe that choice, variety and balance in everything we eat and drink are the cornerstones of a healthy diet.

Many Canadians appreciate the convenience and portability of bottled water. It is a healthy hydration option for those on the go.

Water Usage

The entire Canadian bottled water industry uses a minimal amount of water when compared to other industries and the residential consumer. The Canadian Bottled Water Association (CBWA) estimates that the bottled water industry uses less than 1/100th of 1% of all annual water withdrawals in Canada. This figure not withstanding, it is important to remember that in the hydrological cycle, water is not created or destroyed it is simply used, consumed, treated and then returned to the environment.

All industries use water in their products and processes. For example, according to Environment Canada, it takes 300 litres of water to produce 1 kilogram of paper, 1,000 litres of water to grow 1 kilogram of potatoes, and 215,000 litres of water to produce one ton of steel.

Our industry works to manage water resources in a responsible way. We invest in the science and technology to improve water quality, make manufacturing operations more efficient, and to strengthen water conservation practices around the world. The Coca-Cola Company, for example, has decreased water usage by 5.6% globally in the past five years, and since 2006, PepsiCo Inc. has been making steady progress toward its goal of reducing global water consumption by 20% per unit of production by 2015.

Beverage Safety

Bottled water is regulated as a food in Canada, so it must meet the highest standards set by Health Canada. All of our members' production facilities are highly regulated by the Canadian Food Inspection Agency. These facilities have stringent quality measures. In fact, all products, including bottled water, are tested at the beginning and end of each production run and hourly during production.

In situations of natural disasters, bottled water is often the safest way to stay hydrated. In fact, many communities often recommend that people keep bottled water on hand in case of a local emergency.

Bottled Water in Schools and Public Spaces

Bottled water is healthy; it's safe, it's convenient and it's an important source of hydration. Many provincial governments have guidelines in place for schools that recommend water as a healthy hydration option for students. Refreshments Canada thinks bottled water fits with those guidelines, and strongly feels that students should have access to it.

Having access to convenient and healthy hydration is equally important in public buildings and parks. This isn't a question of **either** municipal water **or** bottled water. We think there's a place for both, especially when tap water is not always readily available.

Bisphenol-A

There has been a lot of news coverage lately regarding the use of bisphenol-A in certain types of packaging. The single use plastic containers used by the beverage industry (including those used for bottled water) are made from PET plastic. There is no bisphenol-A in PET plastic bottles (including water bottles) because no bisphenol-A is used to manufacture PET plastic.

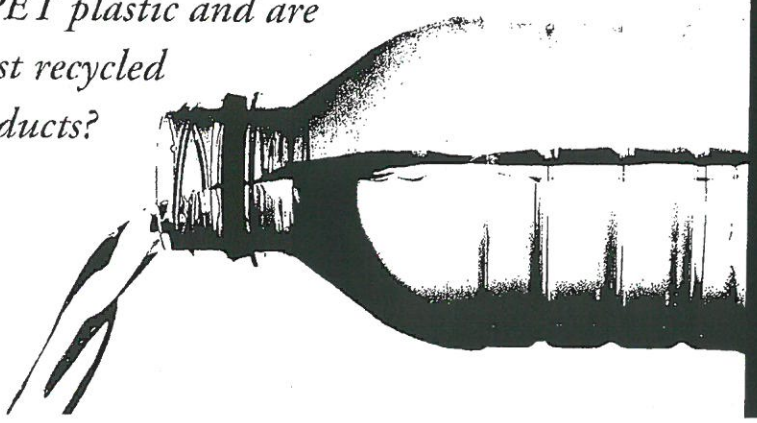
Energy Use for Bottled Water Packaging

Whether it's a jar of pickles, a carton of ice cream or a bottle of water, virtually all consumer products require energy for their production, packaging, and distribution. When considering the energy used in the production of packaging, PET plastic bottles offer a number of benefits. PET is very light and strong, and requires only a small amount of packaging material to be used. PET plastic is 100% recyclable. PET plastic bottles are recycled at a high rate in Canada. Recycled PET plastics retain a very high portion of the energy used to create the material in the first place. This energy is preserved when the PET is recycled and turned into other useful consumer products, including PET bottles. By continuing to recycle at a high rate, consumers are not only reducing the amount of materials that go to landfill, they are minimizing much of the energy used to produce new packaging.

Municipal Water

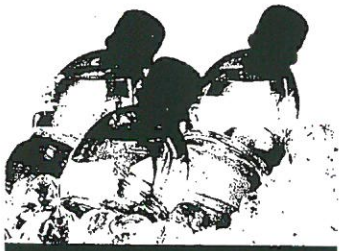
Like most businesses and commercial enterprises our sector uses municipal water. Refreshments Canada supports a strong municipal water system. Beverage manufacturers use municipal water as a raw material to make their beverage products. Therefore, as members of municipal water systems, it's in our best interest to support a modern, sustainable public water infrastructure.

Did you know that bottled water containers are made of PET plastic and are one of the most recycled consumer products?



Some other facts about PET Beverage Containers and Recycling

- Across Canada all non-alcoholic PET beverage containers account for less than 0.5% of the total waste generated, and the majority of those beverage containers are being captured from the waste stream and recycled into new products.



- PET beverage containers are 100% recyclable, and are recycled at very high rates across Canada. For example, based on municipal waste audit data published by Stewardship Ontario, PET beverage containers (including bottled water) are recycled in Ontario single-family homes at average rates of around 70% and closer to 90% in some large urban centres like Toronto.* In British Columbia, based on data provided by Encorp Pacific, they are recycled at 70%, and similar rates are achieved in other jurisdictions.

- Recycled PET containers are turned into other consumer products such as fleece jackets, vests and carpeting.

- The industry and its products support recycling programs and recovery infrastructure in all Canadian jurisdictions.

- The industry continues to invest in innovations that result in new packaging that uses fewer materials.

*Reference: http://www.stewardshipontario.ca/blue-box/eefund/projects/audits/waste_audit_sf.htm

Bottled Water: Myths vs. the Facts

Myth: Plastic water bottles are clogging up landfills all over the country.

Fact: Bottled water bottles are 100% recyclable and are recycled at high rates across the country. All PET non-alcoholic beverage containers account for less than 0.5% of all waste produced in Canada. The beverage industry's containers are the most recycled consumer product packaging in Canada. Furthermore, recycling programs and infrastructure are supported by the industry and its products in every jurisdiction in Canada.

Myth: Single use PET plastic water bottles contain BPA.

Fact: The single use plastic containers that are used by the beverage industry, including those used for bottled water are made from PET plastic. There is no bisphenol - A in PET plastic water bottles because no bisphenol - A is used to manufacture PET plastic.

Myth: Bottled water competes with municipal water systems.

Fact: Tap water serves a variety of purposes in the typical Canadian household including personal hygiene, clothes and dish washing, cooking, cleaning, irrigation and drinking. Whether tap or bottled water – there's room to choose depending on a consumer's needs and preferences throughout the day.

Furthermore, water is the primary ingredient for many of the beverages produced by the Canadian beverage industry. Therefore strong municipal water systems are as important to the Canadian beverage industry as they are to all citizens.

Myth: Municipal water is safer than bottled water.

Fact: Bottled water is regulated by Health Canada and the beverage industry's facilities are inspected by the Canadian Food Inspection Agency. Members test water for quality and safety before production, each hour during production and at the end of production. The bottled water produced by Refreshments Canada's members meets or exceeds all Canadian requirements.

Myth: Production of bottled water requires an inordinate amount of water.

Fact: According to the Canadian Bottled Water Association, the production of bottled water accounts for less than 1/100th of 1% of all the water consumed on an annual basis in Canada. To put that into perspective, for every 10,000 litres of water used in Canada for all applications, less than 1 litre is used for production of bottled water. In fact, in a year, the average Canadian consumes less bottled water than is required to take one 3-minute shower or to brush their teeth 7 times.

Refreshments Canada
Boissons rafraîchissantes

Refreshments Canada is the national trade association representing the broad spectrum of brands and companies that manufacture and distribute the majority of non-alcoholic beverages consumed in Canada. For more information contact:

Justin Sherwood • Refreshments Canada • justin@refreshments.ca • 416-362-2424

Association of Municipalities of Ontario
200 University Ave, Suite 801
Toronto, ON M5H 3C6
Tel.: (416) 971-9856 | Fax: (416) 971-6191
E-mail: amo@amo.on.ca

FYI

MEMBER COMMUNICATION

FYI N°: 09-002

To the attention of the Clerk and Council
February 3, 2009

FOR MORE INFORMATION CONTACT:
Craig Reid, AMO Senior Policy Advisor
(416) 971-9856 ext 334

Municipal Action on Bottled Water

Issue: Municipalities across Canada and in Ontario have recently taken action to encourage use of municipal tap water at municipal events and facilities.

Municipal councils across Canada, including 13 Ontario municipalities have taken action in recent months to limit the use of bottled water in municipal facilities, where appropriate, and to support the use of municipal tap water by residents and visitors. AMO understands that a number of other Ontario municipalities are also considering such initiatives.

Ontario councils taking action in this area include the cities of Sault Ste. Marie, London, Windsor, the Regional Municipality of Waterloo and the Town of Blue Mountains, amongst others. Across Canada, other municipalities such as St. John's, Newfoundland, Charlottetown, PEI, Altona, Manitoba, Toronto and the Region of Metro Vancouver have also taken action.

In some cases these actions have been supported through public education to increase awareness of the safety of municipal tap water, actions to increase the supply of municipal tap water at events through mobile water trucks and increase of supply of municipal tap water where necessary.

These measures complement long-standing positions taken by AMO and other municipal associations by increasing awareness of the affordability, health and safety of municipal tap water and the need for continuing public investments in infrastructure to provide affordable clean water to municipal residents. They also encourage stewardship of water as a valuable resource and help to reduce the amount of plastics in municipal waste streams.

Action:

Councils interested in investigating this issue are encouraged to contact those municipalities that have taken action.

This information is available in the Policy Issues section of the AMO website at www.amo.on.ca.

FCM RESOLUTION – NATIONAL BOARD OF DIRECTORS MEETING – MARCH 7, 2009

ENV09.1.02
BOTTLED WATER

WHEREAS bottled water consumes significant amounts of non-renewable fossil fuels to extract, package and transport water creating unnecessary air quality and climate change impacts;

WHEREAS it takes about three litres of water to manufacture a one litre plastic bottle of water;

WHEREAS bottled water companies use municipal water and groundwater sources when a growing percentage of Canadian municipalities have faced water shortages in recent years;

WHEREAS although bottled water creates a container that can be recycled, between 40% and 80% of empty bottles end up as litter and/or are placed directly into the garbage and take up unnecessary space in landfills;

WHEREAS tap water is safe, healthy, highly regulated and accessible to residents, employers, employees and visitors to Canadian municipalities and substantially more sustainable than bottled water; and

WHEREAS some municipalities have enacted by-laws to restrict the sale and purchase of water bottles within their own operations;

BE IT RESOLVED that the Federation of Canadian Municipalities urge all municipalities to phase out the sale and purchase of bottled water at their own facilities where appropriate and where potable water is available; and

BE IT FURTHER RESOLVED that municipalities be urged to develop awareness campaigns about the positive benefits and quality of municipal water supplies.

CITY OF PORT ALBERNI

PARKS AND RECREATION DEPARTMENT REPORT

TO: Ken Watson, City Manager

FROM: Scott Kenny, Director of Parks and Recreation

COPIES TO: Ron Doetzel, Manager of Recreation Services

DATE: August 25, 2011

I concur, forward to next Regular Council Meeting for Consideration:

Ken Watson, City Manager

SUBJECT: Bottled Water Use

Issue:

At the regular meeting of Council held on August 22, 2011, Councilor McLeman requested a report on the impact if banning the sale of bottled water in City facilities and distribution at special events.

Background:

The City currently sells bottled water in the concessions and vending machines at the Alberni Valley Multiplex and Glenwood Centre as well as vending machines in Echo Centre. The respective volumes are as follows:

FACILITY	CONCESSION	VENDING MACHINES	TOTAL NET REVENUE
AV Multiplex (2010)	$1779.75	$2364.75	$4144.50
Glenwood Centre (2010)	$350.00	n/a	$350.00
Echo Centre (2010)	n/a	$1665.00	$1665.00
			$6159.50

The number of drinking fountains in City Parks and Facilities was reduced several years ago as part of our service cuts and budget reductions. Our current inventory is as follows:

FACILITY	INSIDE	OUTSIDE
AV Multiplex	Yes, one in front lobby	No
Glenwood Centre		
Echo Park Fieldhouse		Yes, beside concession window
Echo Centre	Yes, beside main lobby washrooms	No
Aquatic Centre	Yes, in pool area	No
Gyro Centre		No, removed –cost reductions
Harbour Quay		By washrooms (out of order)
Bob Dailey Stadium		Yes, by flagpoles
Rogers Creek Park		Yes, by spray park
Russell Park		No, removed –cost reductions
Weaver Park		No, removed –cost reductions

River Road Park		No, removed –cost reductions
Sweeney Field		No, removed –cost reductions
11th Ave Park		No, removed –cost reductions
Glenwood Small Park		No, removed –cost reductions
Kiwanis Park		No, removed –cost reductions
Stirling Field		No, removed –cost reductions
Williamson Park		No, removed –cost reductions

Discussion:

Total bottled water sales for 2010 averaged approximately $6159, which translates into annual sales through our concessions and vending machines of 3080 units.

While we understand the issue behind banning the sales of bottled water, it seems a bit odd that we would be moving towards banning the healthiest beverage choice available in our facilities. Having water fountains available in the same facilities is not a satisfactory alternative in our view. We should also mention that in our experience at the facility, we have found that many adults will not use drinking fountains and often discourage their kids from doing the same. If this motion were to be supported, we would continue to stock and sell all of our other beverage choices, many of which are in plastic bottles and not the healthiest one, water!

Recommendation

The following resolution is proposed:

1. *That Council for the City of Port Alberni not support the proposal to ban the sale of bottled water in City facilities or at City functions.*
2. *That Council for the City of Port Alberni encourage the public use of City water from drinking fountains and direct the Parks and Recreation Department to include costs for restoration and maintenance of public drinking fountains in City Parks during the 2012 budget presentations.*

Respectfully submitted,

Scott Kenny
Director of Parks and Recreation

L:\Echo Activity Centre\Data\Scott Kenny\Facilities\General Facility Info\Bottled Water Report 2012.docx

We're losing our freedom bit by bit with bans

BY MAUREEN BADER, THE PROVINCE JANUARY 16, 2011

These days, we are bombarded with demands for bans by a garden variety of supporters of the nanny state and politicians are happy to help. Politicians seem to adore bans. Why? Because bans allow politicians to appear to be creating simple solutions to whatever problems have captured the imagination of the worrying class. However, bans also create unintended consequences and even worse, they reduce responsible people to supervised children with few opportunities to make choices on their own.

A well-intentioned public risks being buried under the ban demands of the ban-crazy worrying class. Its list of bans reads like somebody's day out at the mall. Bottled water and incandescent light bulb bans litter the province. Plastic bags may soon be banned across Canada. Greater Victoria has just voted to ban teens from tanning beds. Ban the tan? When no intrusion is too small for government to consider, it's a sign the nanny state has run amok.

Bans might seem like a good idea on the surface, but have unintended consequences that sometimes create even bigger problems than the ones they were supposed to solve. For example, although the City of Vancouver voted to phase out the sale of bottled water, the cash-strapped Vancouver Parks Board has refused to stop selling bottled water at park facilities because it would lose $250,000 in revenue on bottled water sales.

The green social engineers in the provincial government have banned incandescent light bulbs and want everyone to replace them with compact fluorescent bulbs. Compact fluorescents contain mercury, and mercury is dangerous to human health. In fact, the U.S. Environmental Protection Agency warns if a fluorescent bulb breaks, leave the room immediately and air out the room for 10-15 minutes. Then go back into the room and put all the broken fragments into a sealed container. Put the container in the trash outside and continue airing out the room for several hours. People worried about mercury poisoning, not to mention skyrocketing home heating costs, might want to consider stocking up on incandescent bulbs.

Plastic bags are another everyday item subject to the attention of the worrying class, but their replacement appears to have problems as well. Many people have voluntarily chosen to replace plastic bags with reusable cloth bags. Seems well intentioned. However it should come as no surprise by now that the law of untended consequences comes into play here too. Turns out reusable bags fill up not only with groceries, but with bacteria as well. Worse yet, some contain lead and, in what has to be a moment of true irony, threaten to fill landfills. Go figure.

So while bans are great tools for politicians to get lots of positive media attention while appearing to be doing something tough on some issue, they sometimes create new problems.

Worse yet, as we leave more and more decisions in the hands of the nanny statists, we are, bit by bit, chipping away at our freedom of choice. It's time to stop asking government to solve every problem by banning everything undesirable in products and other people.

Bans might seem like a good idea, but once government's role stretches beyond keeping us safe from violations and invasions by other people and other nations, we are in danger of losing our ability to make even the simplest choices about how to lead our own lives.

Maureen Bader is a Vancouver writer.

540-1

From: City Council
Sent: Monday, July 24, 2017 12:26 PM
To: City Council
Subject: Form submission from: Write a Letter to Council

Submitted on Monday, July 24, 2017 - 12:26
Submitted by anonymous user: 207.47.243.164
Submitted values are:

Date: Monday, July 24, 2017
To: His Worship the Mayor and Members of City Council
First Name: Angie
Last Name: Bugg
Address: 308 Albert Ave
City: Saskatoon
Province: Saskatchewan
Postal Code: S7N 1G1
Email: angie.bugg@sasktel.net
Comments:
I would like to speak to the Standing Policy Committee on Environment, Utilities and Corporate Services at their August meeting, on behalf of the Saskatoon Environmental Advisory Committee, regarding the Initiatives to Support Energy-Efficient Building Standards in Residential Construction.

Overall SEAC is very pleased with this report from Administration and agrees with the approach being taken. We are very happy with the plan for education for the building community on how to build more efficient homes, and for the real estate and financial community on the value of more efficient homes.

The standards put forward in section 9.36 of the national code are a small step forward in energy efficient homes. We need to take much larger steps. As well as ensuring that the building community is building to the new section 9.36 standards when they are implemented, we need to be working toward much better standards. Net Zero and Net Zero Ready homes are now being built in Saskatoon.

We recommend that this plan be adjusted to include the additional training and consultation to get all new homes built to Net Zero or Net Zero Ready standard within the next few years, with the intention that Net Zero become Saskatoon's standard for residential construction within the very near future.

The results of this submission may be viewed at:
https://www.saskatoon.ca/node/398/submission/185128

Absence Management and Disability Assistance Services Update

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That the one-year pilot program with Bridges Health be extended for an additional one-year to enable a more complete assessment of the benefits of using a third-party vendor to provide disability and/or absence management support.

Topic and Purpose

The purpose of this report is to extend the one-year pilot program with Bridges Health by one year. The results from March to December 2016 continue to show positive results; however, the current information does not enable us to conclude that this strategy will be successful on a long-term basis.

Report Highlights

1. The Bridges Health Pilot Report for the period March to December, 2016, has been received. The employees currently referred to the program have experienced a 9% reduction in absence usage during this period.
2. The program had 83 referrals during this period. Of these referrals, 76 have been included in the Bridges Health Pilot Report.
3. Of the 76 referrals, 11 have been excluded due to a range of case specific circumstances. The report considers 65 referrals as part of the pilot group.
4. Bridges Health has reported that 77% (50 out of 65) are experiencing a reduction in sick leave in the pilot program.
5. 15 employees have experienced an increase in absences.

Strategic Goal

This initiative supports the Strategic Goal of Continuous Improvement as it is supports employees returning to work sooner, which contributes to employee engagement and organizational productivity.

Background

The City of Saskatoon (City) entered into a one-year pilot program with Bridges Health in accordance with the program policies and procedures documented in the Disability Assistance Program (DAP) manual and the Collective Agreement between the City and The Amalgamated Transit Union, Local No 615 (ATU) and between the City of Saskatoon and SCMMA.

This pilot program involves Saskatoon Transit employees who are members of the ESA, SCMMA and ATU. The employee group consists of employees with illnesses/absences of 10 days or greater within a 12-month period, which is the current criteria of the City's DAP. Illnesses/absences of 10 days or greater include:

- An employee is off 10 days in a row.

- An employee goes over 10 days in casual absences.
- An employee provides notice they will be of for more than 10 days.

The original duration of the pilot involved a 12-month period that commenced March 31, 2016. The agreement for the pilot program was that the number of referrals does not exceed 52 over the timeline of the project.

At Standing Policy Committee on Environment, Utilities and Corporate Services held on July 19, 2016, it was resolved that the matter be deferred and the Administration report at the appropriate time (one or two quarters into the pilot project), including comparative data within the project scope and current pilot project.

Report

The Bridges Health Pilot report provides data on employees referred between April and December 2016. The total number of employees included in this report are 76.

	Group Name	Number of Employee Participants	Percentage of Employee Participants	Definition
1	Reduction Group	50	66%	Group of Employees in which Bridges Health Managed Absences for. This group experienced reduction in absenteeism
2	Increase Group	15	20%	Group of Employees in which Bridges Health Managed Absences for. This group experienced increase in absenteeism
1&2	Pilot Group	65	86%	Group of Employees in which Bridges Health Managed Absences for. Includes reduction group and increase group (1&2).
3	Exclusion Group	11	14%	Group of Employees in which Bridges Health Managed Absences for. However, due to internal circumstances within the City of Saskatoon, our interventions were not able to be utilized. This is further explained in the report.
	Total	76	100%	

The City has also conducted its own review on the impact of this pilot on absenteeism. There is evidence of a decrease in aggregate absenteeism during this period and coincidental with the commencement of the pilot project. In addition, there is also evidence of a decrease in absenteeism in employees with greater than 18 days absence in 2015 who participated in the pilot.

Options to the Recommendation

One option to the recommendation is to conclude the pilot project and put in place a dedicated internal resource to assist Saskatoon Transit with its disability and/or absence management programs.

Communication Plan

Materials will be developed to inform stakeholders of any changes in length or scope to the pilot program. Anticipated activities include adding information to the City's website, letters to stakeholder groups, and developing a hand-out of frequently asked questions.

Financial Implications

The financial implications for the pilot project is anticipated to be $70,000 for an additional year. This estimate is based on 50 employees participating in the extended project. It is anticipated that it will require additional resources if this service is provided internally. The estimated cost of the project is $75,000 on an annual basis supported by the Transit Operating Budget.

Other Considerations/Implications

There are no public and/or stakeholder involvement, policy, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

There is no follow-up and/or project completion dates.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. City of Saskatoon Summary Report
2. Bridges Health – Pilot Report – Absence Management Partnership

Report Approval

Written by:	Dan Tkatchuk, Compensation and HR Systems Supervisor
Reviewed by:	Marno McInnes, Director of Strategic Negotiations, Total Rewards and Workforce Analytics
Approved by:	Jeff Jorgenson, Acting General Manager, Corporate Performance Department

CP - EU&CS DT - Absence Management and Disability Assistance Services Update

CITY OF SASKATOON SUMMARY REPORT

The report provides an overview of the impact of the Bridges Health pilot project at Saskatoon Transit and its impact on the absenteeism rate and supplements the report provided by Bridges Health.

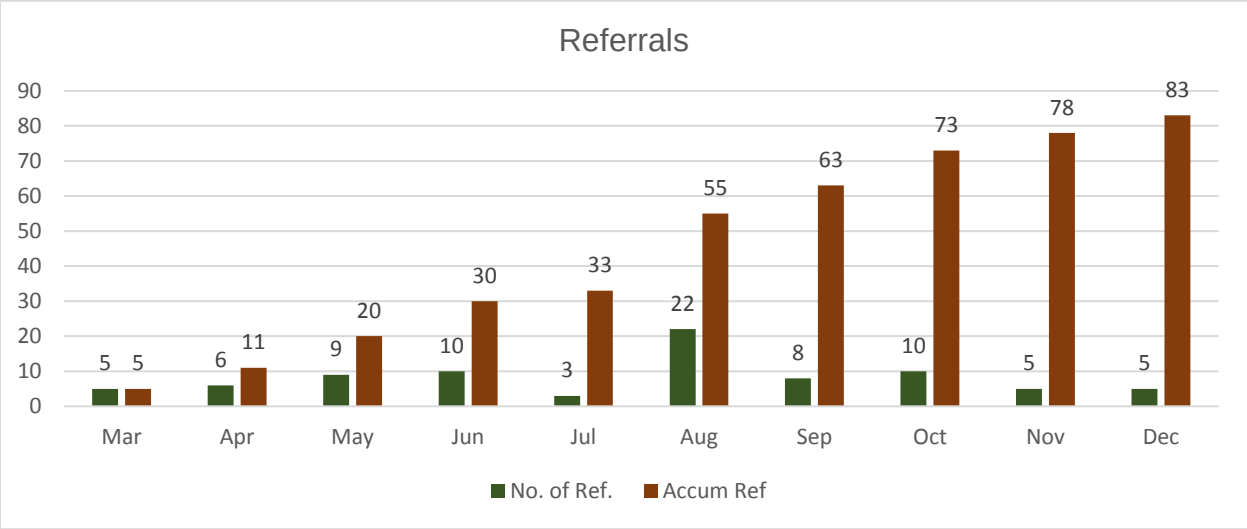
The scope of this pilot includes Saskatoon Transit employee which are represented by ESA, SCMMA and ATU Local 615.

Scope of the Pilot Project

The scope of the pilot was to include up to 52 employees. The bulk referral method was replaced with a rolling referral method and employees have been referred to this pilot over a period of time. The current number of employees assisted by Bridges Health is approximately 90.

Referrals

There were 83 referrals between April and December, 2016. Of those referrals 73% have been employed by Saskatoon Transit since 2013. Eighty two percent were employed in 2015 enabling us to compare sick leave utilization statistics for the period prior to the pilot period against the pilot period (March to December).

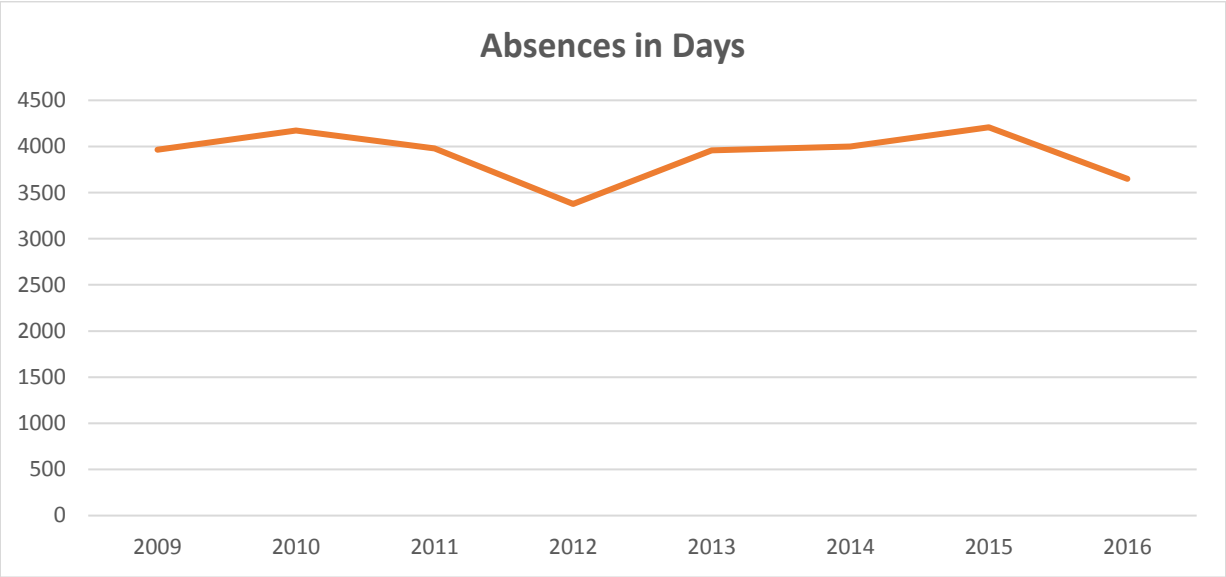


The intended scope of the pilot project was to include 52 employees for a period of 12 months to determine the impact of using an external service such as that provided by Bridges Health. The current pilot project used a rolling referral approach rather than the preferred bulk referral method. This report looks at 83 employees that entered the program before December 2016.

Aggregate Absenteeism Comparison Data

The absenteeism trend provides a comparison over the last eight years of the aggregate absenteeism data. The following data includes paid sick absences but does not include Sick Bank or Unpaid Sick utilization.

The City and ATU were involved in protracted negotiations which impacts the aggregate data in 2014. The following charts have been adjusted to account for the effect of the one month lockout in 2014. The adjustment is based on the assumption that, had the lockout not occurred the utilization during the lockout period would have been consistent with the average utilization in 2014.

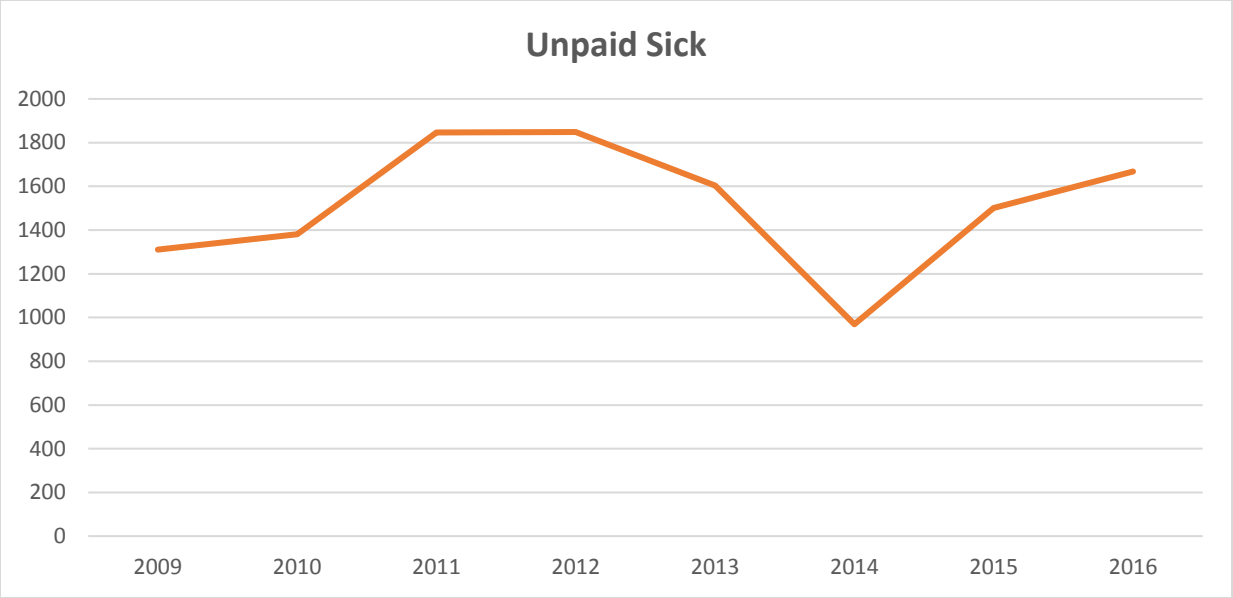


There was an upward trend in absenteeism from 2012 to 2015 with a noted decease (13.2%) in the year the Bridges pilot was introduced.

There is a decrease in total sick related paid absenteeism from 4,208 days (2015) to 3,649 days (2016). This resulted in individual absenteeism decreasing from 9.2 days/employee to 8.0 days/employee.

Aggregate Unpaid Sick Leave Comparison

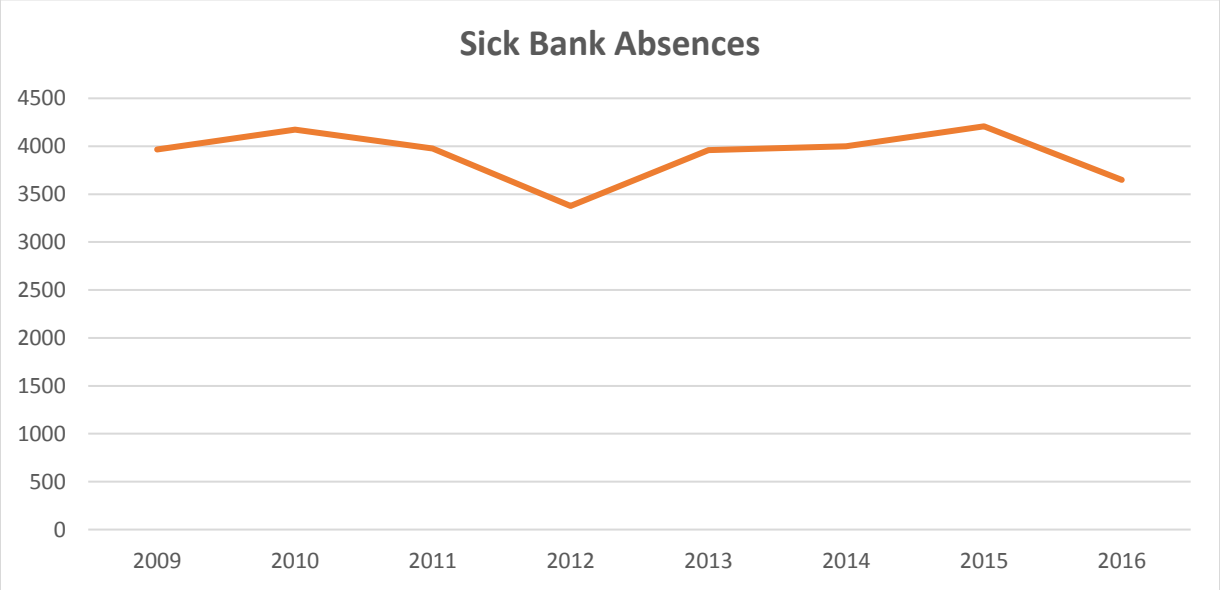
There was an increase in unpaid sick utilization over the last four years. The following data does not include Sick Bank or Paid Sick utilization.



There was an upward trend in unpaid sick from 2015 to 2016. Unpaid sick is coded when an employee is absence due to sickness but does not have sick credits available. No medical verification is provided for these absences.

Long Term Absences

Longer term absences are covered by the Sick Bank/Long Term Disability provisions contained in the collective agreement.

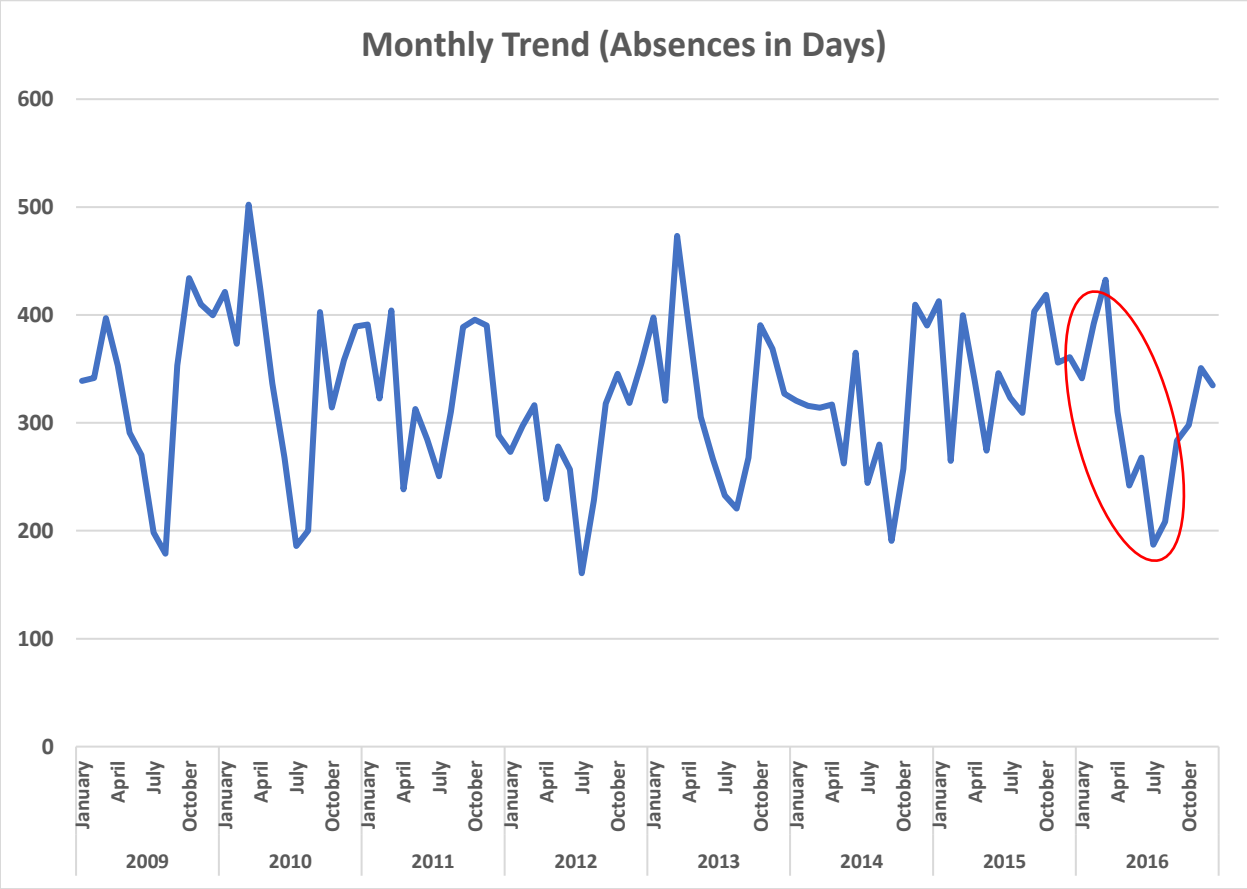


There was an upward trend in sick bank utilization from 2011 to 2015 with a substantial decrease (31.8%) in the year the Bridges pilot was introduced. This shift may be attributable to a combination of changes such as the Sick Bank Committee

representation, the small number of employees involved with the sick bank and to a lesser extent the pilot.

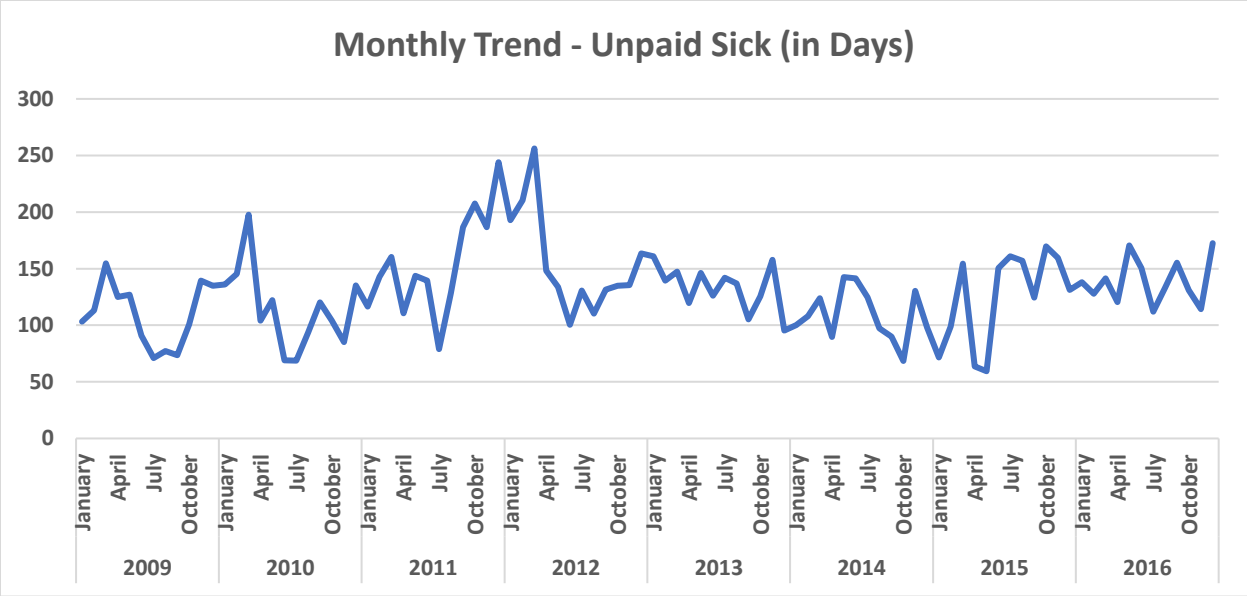
The number of employees on sick bank at any point in time is relatively small when compared to the overall employee populations at Saskatoon Transit resulting in the potential for considerable variations.

Monthly Trends

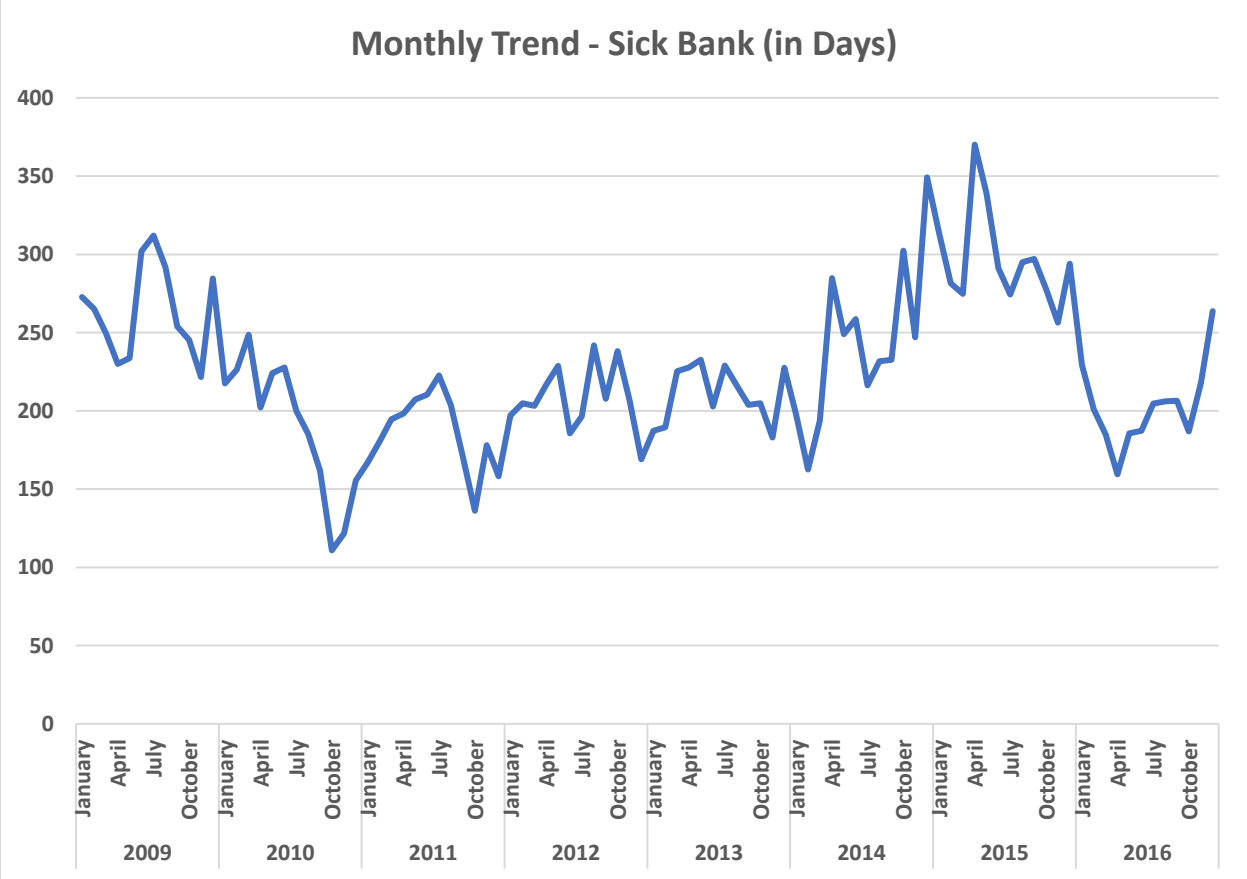


There was a decrease in aggregate absenteeism in the second quarter of 2016 coincidental with the commencement of the pilot project. The fact that the initial referrals to the pilot project involved a small number of employees the reduction in absenteeism is also related to factors other than the pilot program itself.

While the pilot project cannot be directly credited with the above reduction, the introduction of a program of this type may have an indirect impact. The simple announcement of a significant workplace program will often change behaviour.



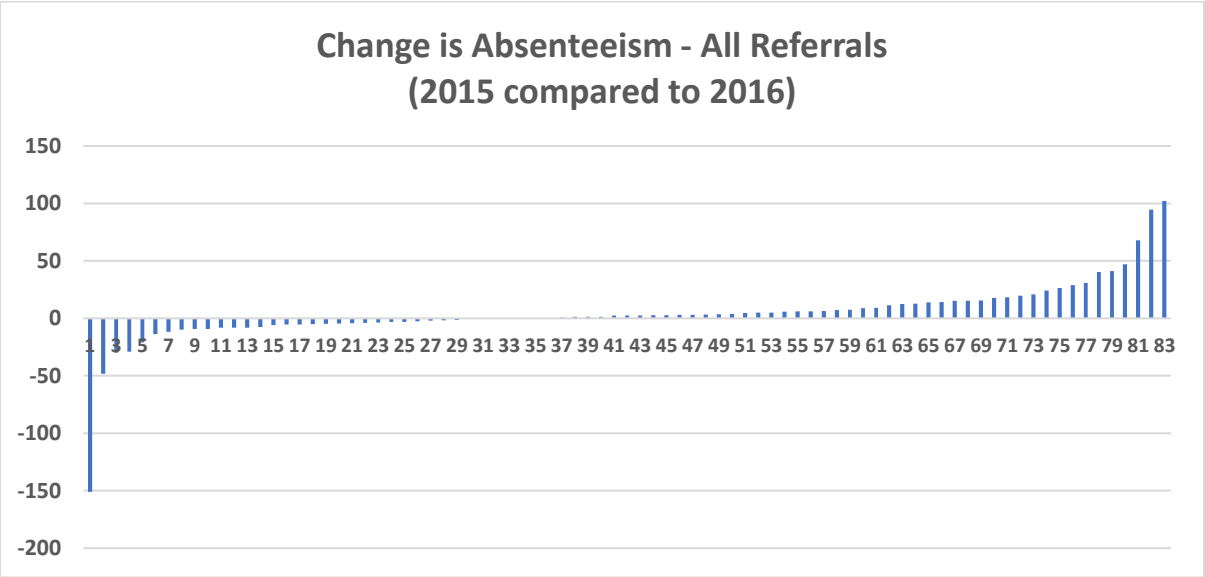
Actual unpaid sick leave utilization has not significantly changed when compared to the 12 month period preceding the pilot project being introduced.



The sick bank involves a smaller number of employees (approximately 20 or less employees) so the data set variability is more dramatic and impacted significantly by a few employees changing their status.

Direct Program Impact

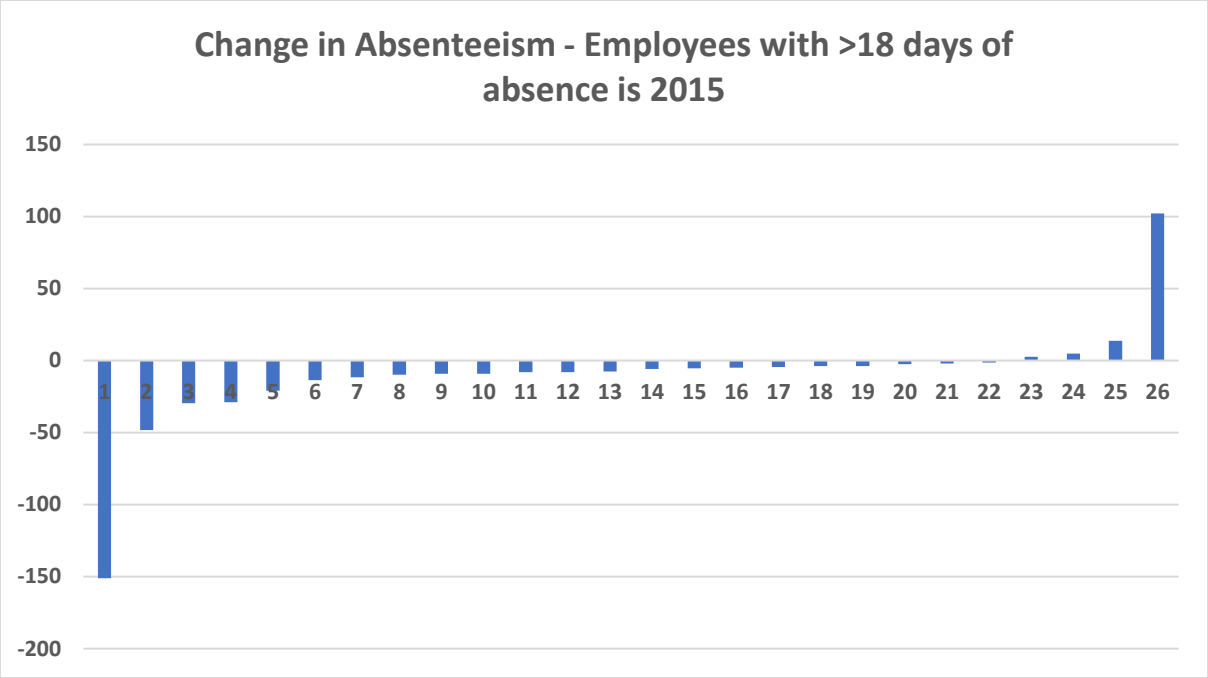
The effectiveness of the pilot project was considered through a comparison of the employee's behaviours between April and December, 2016 and their absenteeism behaviour in the previous 12 months. The results are mixed.



Approximately 32% of the above group shows an increase due to the fact that they had less than 10 days absence in 2015.

The all referral comparison does not provides a mixed result in terms of the pilot's success.

Within the collective agreement employees with greater than 10 years accrue 18 days of sick credits a year. Twenty six employees (31.3%) that participated in the pilot project had in excess of 18 days of absences in 2015.



Of the twenty-six employees with greater than 18 days of absences in 2015, twenty two (84.6%) saw a reduction in 2016.

Confounding Events and Issues

Although the data provides some preliminary insight into the program's potential there are numerous intervening factors that are relevant to this pilot project.

Project Implementation

This is a short duration pilot project which is not particularly helpful in understanding the project's longer term benefits and sustainability in relation to absenteeism reduction. In addition, this pilot project was introduced incrementally so the full sample size in this project was not achieved until the 3rd quarter of 2016. Normally pilot projects of this nature involve a bulk referral to enable a reasonable assessment of the benefits over a specific period of time.

Project Launch Complications

There were a number of issues in relation to the launch of the pilot project that has undoubtedly impacted the results. There was some confusion in relation to roles and responsibilities in connection with the City's absence management program, referrals to and from the pilot as well as some staffing issues during the early stages of the pilot's implementation.

Return to Work Limitations

There are also examples of referrals managed by the pilot that were delayed due to challenges of having opportunities to return employee back in the workplace resulting in employee's remaining on sick related benefits.

Closing Comments

In 2015, Saskatoon Transit had an average of 19.60 days of absence/employee (Sick and or WCB related absences). In 2016, this was reduced to 17.17 days of absence/employee. This is a 12.4% reduction in absences.

The work of managing absenteeism requires proper support regardless of whether it involves an external provider, it is managed internally or handled using some combination of the two options.

2017-08-04

Statistical Results on the Partnership between the City of Saskatoon Transit, and Bridges Health

Pilot Report

Absence Management Partnership

Attention: Marno McInnes
Dept: Human Resources

Developed by:
Leon Ferguson, Vice President
Adelle Stewart, Director of Operations

Table of Contents:

Overview:

Introduction:

Bridges Health engaged with the City of Saskatoon and Saskatoon Transit on a one-year pilot project in which Bridges Health in facilitating the Disability Assistance Program (DAP).

Scope of Project:

Employees are referred to Bridges Health under the following following the same criteria as the City of Saskatoon's DAP process:

- once they reach a cumulitive ten (10) days of absence
- once they reach 10 days in a row of absence
- if they provide notice of being off for more than 10 days for future absence

Bridges Health has a similar yet enhanced program called Managed Abilities Program (MAP) but due to the nature of Saskatoon Transit being without a collective barganing agreement it was prohibitive to introduce due to internal issues, including industrial relations issues, the MAP program was not able to be implemented in its fullest capacity.

Number of Employees:

The full scope of the pilot was initially up to 52 employees referred. However, due to the length of time for the pilot to reach that number by a rolling referral platform, Bridges Health has extended the scope of the project and continued to accept referrals into 2017.

Current State As of April 2017:

The current number of employees Bridges Health is assisting is 92.

Challenges:

1. The pilot is based on the City of Saskatoon's Disability Assistance Program and was intended to maximize the benefits of the existing program. Bridges Health recommended a full implementation of our proprietary Managed Abilities Program (MAP). A full implementation of MAP would improve results as well as extend to WCB Absence Management Claims being attended to on the day of incident.
2. Employees were referred over the course of the year, as they reached their collective bargaining agreement absence usage (10 occurences)**.** Results from full MAP Program implementations typically show a 20-30% reduction in absenteeism. The main driver and differentiator in this is that employees are usually referred based on previous 12 months absence rates. Ie: all employees who utilized more days that collectively bargained for are referred in bulk.
3. The pilot was implemented during collective bargaining and furthermore through a work to rule campaign.

Report Parameters and Definitions:

This report provides data on employees referred between April and December 2016. The total number of employees referred in that time period are 76.

	Group Name	Number of Employees	Percentage of Employees	Definition
1	Reduction Group	50	66%	Group of Employees in which Bridges Health Managed Absences for. This group experienced reductions in absences.
2	Increase Group	15	20%	Group of Employees in which Bridges Health Managed Absences for. This group experienced increases in absences.
1&2	Pilot Group	65	86%	Group of Employees in which Bridges Health Managed Absences for. Includes reduction group and increase group (1&2).
3	Exclusion Group	11	14%	Group of Employees in which Bridges Health Managed Absences for. However, due to internal circumstances within the City of Saskatoon, our interventions were not able to be utilized. This is further explained in the report.
	Total	76	100%	

Bridges Health Service Results - Pilot Group

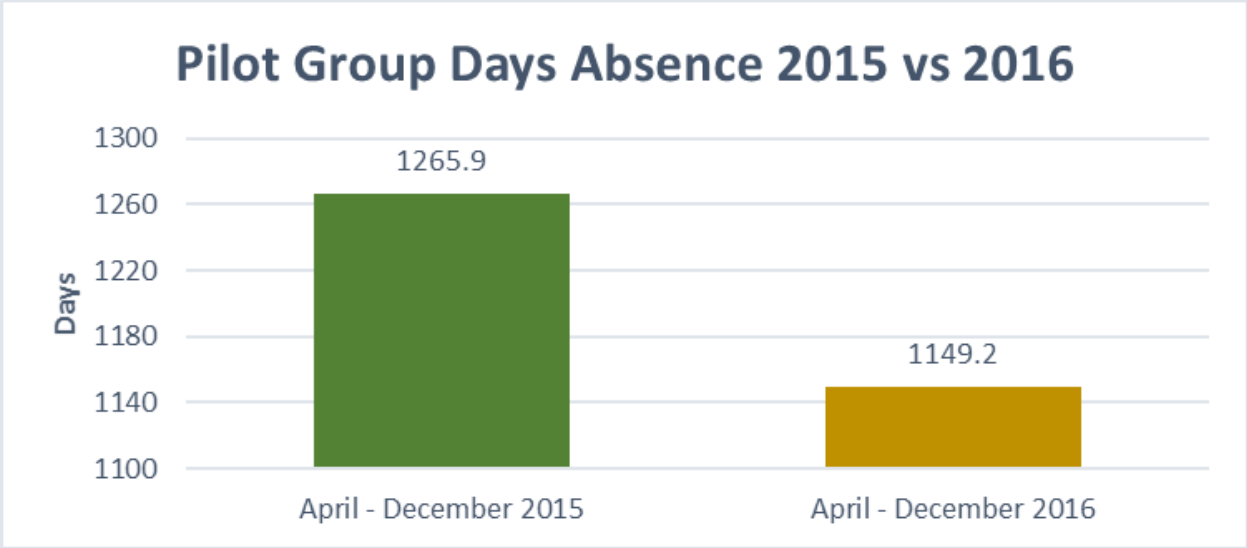
	Group Name	Number of Employees	Percentage of Employees	Definition
1	Reduction Group	50	66%	Group of Employees in which Bridges Health Managed Absences for. This group experienced reductions in absences.
2	Increase Group	15	20%	Group of Employees in which Bridges Health Managed Absences for. This group experienced increases in absences.
1&2	Pilot Group	65	86%	Group of Employees in which Bridges Health Managed Absences for. Includes reduction group and increase group (1&2).
3	Exclusion Group	11	14%	Group of Employees in which Bridges Health Managed Absences for. However, due to internal circumstances within the City of Saskatoon, our interventions were not able to be utilized. This is further explained in the report.
	Total	76	100%	

These results show the Pilot group is experiencing a 9% reduction in absence days.

For an overall comparison, absences of the pilot group were measured from April to December 2015, to April to December 2016.

This comparison is disadvantageous to Bridges results, due to the “rolling referral” method used during the pilot (i.e.: An Employee who was not referred to Bridges until September 2016 – their absences from April to August which should not be included in Bridges results, are). This is a barrier to completely accurate results.

Even as such, the results show the pilot group experiencing a 9% decrease in absence days.



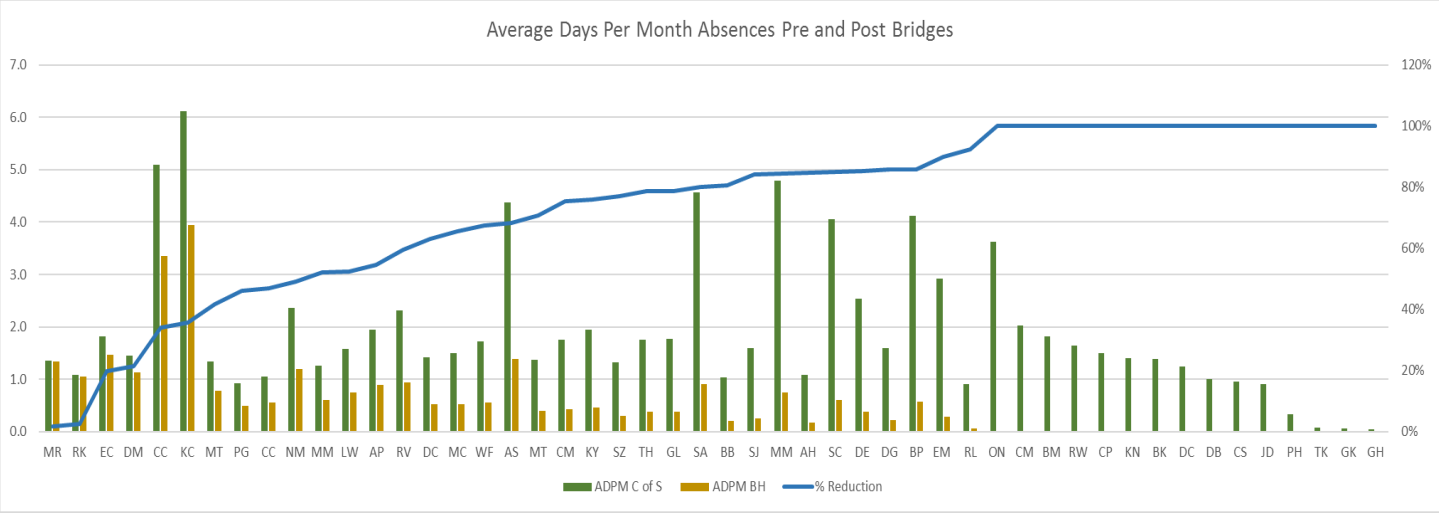
The above graph shows the absence days utilized by the pilot group in 2015 versus 2016 when Bridges facilitated the DAP Program for the 76 employees referred in this time period. As indicated, there is a 9% reduction in the pilot group.

Bridges Health Results - Reduction Group:

	Group Name	Number of Employees	Percentage of Employees	Definition
1	Reduction Group	50	66%	Group of Employees in which Bridges Health Managed Absences for. This group experienced reductions in absences.
2	Increase Group	15	20%	Group of Employees in which Bridges Health Managed Absences for. This group experienced increases in absences.
1&2	Pilot Group	65	86%	Group of Employees in which Bridges Health Managed Absences for. Includes reduction group and increase group (1&2).

3	Exclusion Group	11	14%	Group of Employees in which Bridges Health Managed Absences for. However, due to internal circumstances within the City of Saskatoon, our interventions were not able to be utilized. This is further explained in the report.
	Total	76	100%	

The below graph demonstrates 50 employees (77%) of the Pilot group are experiencing attendance reductions (shown in average days per month utilized in April to December 2015 before Bridges, to April to December 2016 with Bridges).



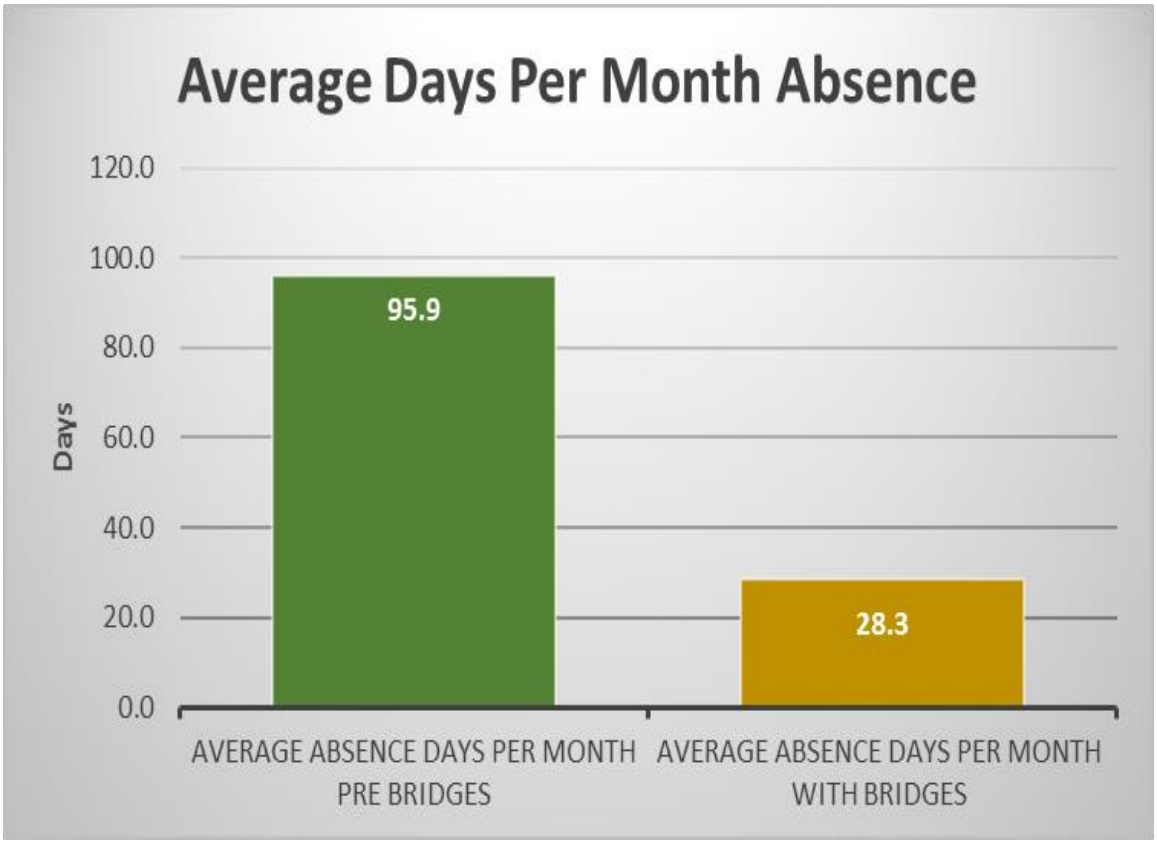
Individual reductions range from 1% to 100% decreases.
Of note, 14 of these employees shown on the furthest right experienced a 100% reduction in their absence days usage (taking zero sick days since working with Bridges).

Contributing factors to the reductions include:

- ✓ Maximizing the DAP program, and meeting with employees within the first 10 absences, assists them in remaining at work and having their minor ailments resolved faster
- ✓ Following up with absence reports within 60 minutes
- ✓ Consistent, timely follow up, ensuring objective medical information is received
- ✓ Recognizing personality discrepancies and facilitating mediation
- ✓ Confidentiality; employees have reported relief that their medical information is protected
- ✓ Accountability and Culture Change; general misuse decreases when being held accountable for providing objective medical

Reduction Group (Continued):

These factors are difficult to mimic within internal organizations as they take a significant amount of dedicated time to facilitate. Bridges Consultants have a narrow scope in managing attendance and do not have additional responsibilities as a full HR Consultant typically has.



The above graph reports the number of absence days taken in the reduction group; before Bridges services were involved (April to December 2015) compared to the time Bridges worked with the pilot group (April to December 2016).

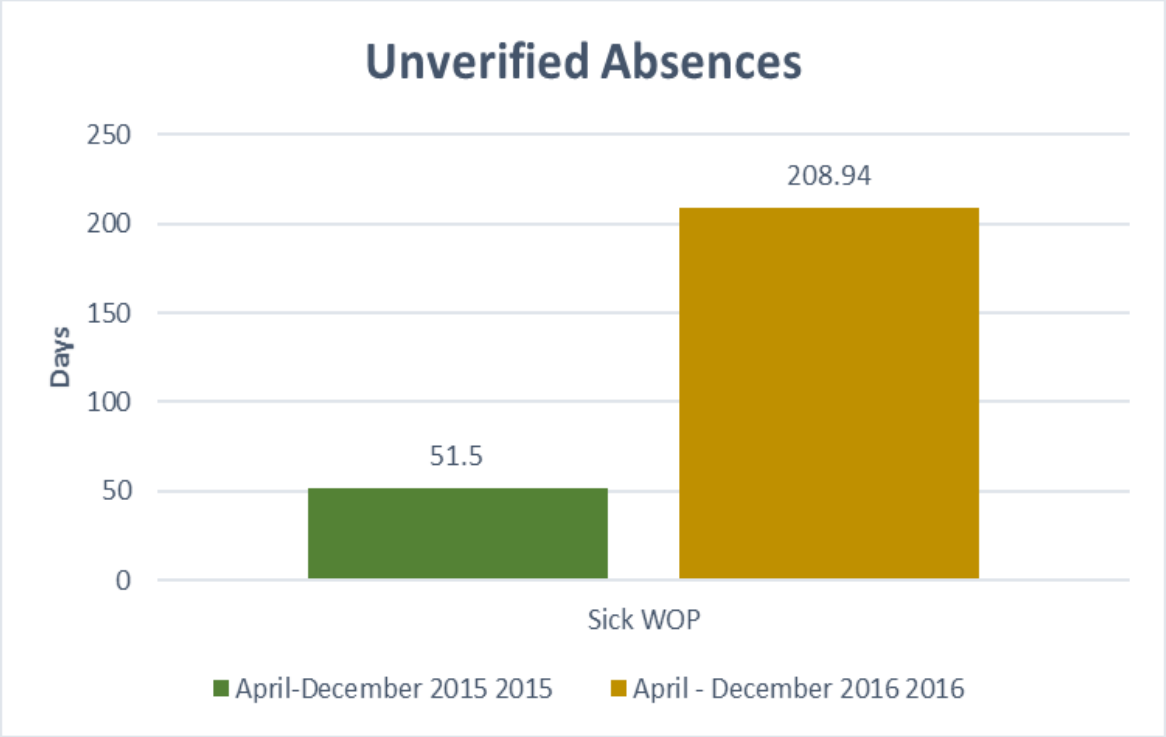
- ✓ The reduction group is experiencing a 70% reduction in sick day usage.

Reduction Group – Continued

Bridges Health also measures the number of absence days that are:
"Verified" (definition – receipt of objective medical information from a certified medical care provider)
versus
"Unverified" (definition – non-receipt of objective medical information from a certified medical care provider)

Unverified sick days lead to the City's ability under the DAP Program to refuse sick day pay for employees with unverified absences.

This is due to diligent and timely follow up on documentation by Bridges Health Consultants and is often related to employees misusing their sick days and do not have objective medical information to support not being at work.



The above graph shows unverified sick days for the 65 employees in the pilot group in 2015 - only 51.5 unverified days (before Bridges); to:

209 unverified sick days in 2016 (with Bridges).

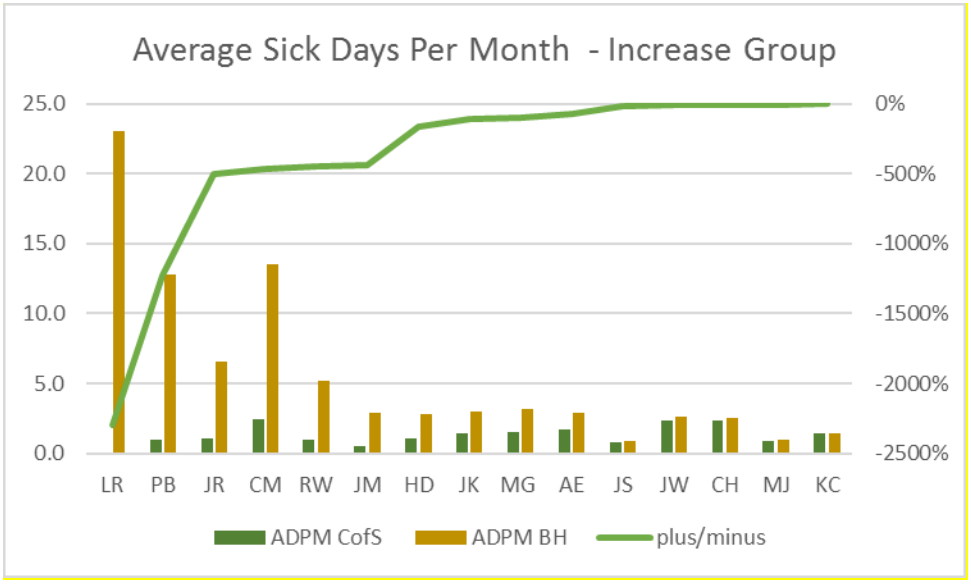
This demonstrates 157.5 days which the City did not have objective medical to substantiate paying sick day benefits, which should be considered an additional savings.

Bridges Health Results - Increases Group:

	Group Name	Number of Employees	Percentage of Employees	Definition
1	Reduction Group	50	66%	Group of Employees in which Bridges Health Managed Absences for. This group experienced reductions in absences.
2	Increase Group	15	20%	Group of Employees in which Bridges Health Managed Absences for. This group experienced increases in absences.
1&2	Pilot Group	65	86%	Group of Employees in which Bridges Health Managed Absences for. Includes reduction group and increase group (1&2).

3	Exclusion Group	11	14%	Group of Employees in which Bridges Health Managed Absences for. However, due to internal circumstances within the City of Saskatoon, our interventions were not able to be utilized. This is further explained in the report.
	Total	76	100%	

23% of the Pilot Group experienced increases in absence days.



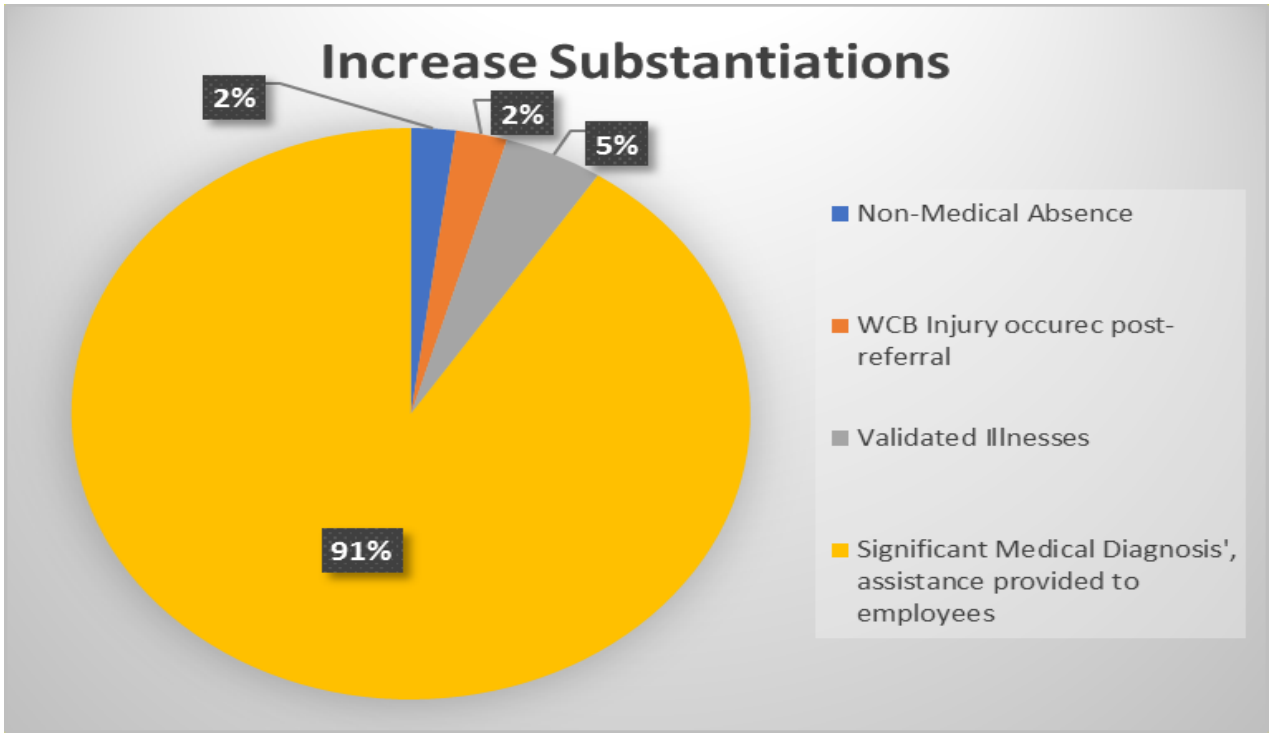
A small number of participants who experience an increase in absence days is typical and expected. As Bridges Health approach includes one of holistic health and wellness of an organization and its employees, employees who should not be at work, aren't. This ensures utmost safety and well-being of an organization and its culture.

The group; 15 employees, (23%) experienced an increase in absence days.

This is typical of all programs Bridges facilitates; these individuals represent employees with significant and objective health concerns in which Bridges Health is assisting in navigating the healthcare system, ensuring they are receiving appropriate and timely care; as well as assisting them to remain at work, or return to work as safely and expeditiously as possible.

Increases Group Continued:

For further clarity on the nature of the increased absence day statistic, below is a breakdown of the nature of the increases:



Examples of nature of illness/injuries sustained by Saskatoon Transit Employees that Bridges Health assisted with include:

- Cerebrovascular injury
- Cardiovascular intervention
- Skeletal injury
- Musculoskeletal injury
- Autoimmune disease
- Metabolic disease
- Mental Health

Interventions and assistance to employees included:

- Surgical expedition
- Attendance at physician appointments for support (at request of the employees)
- Specialist appointment expeditions
- Consistent follow up and support with care providers

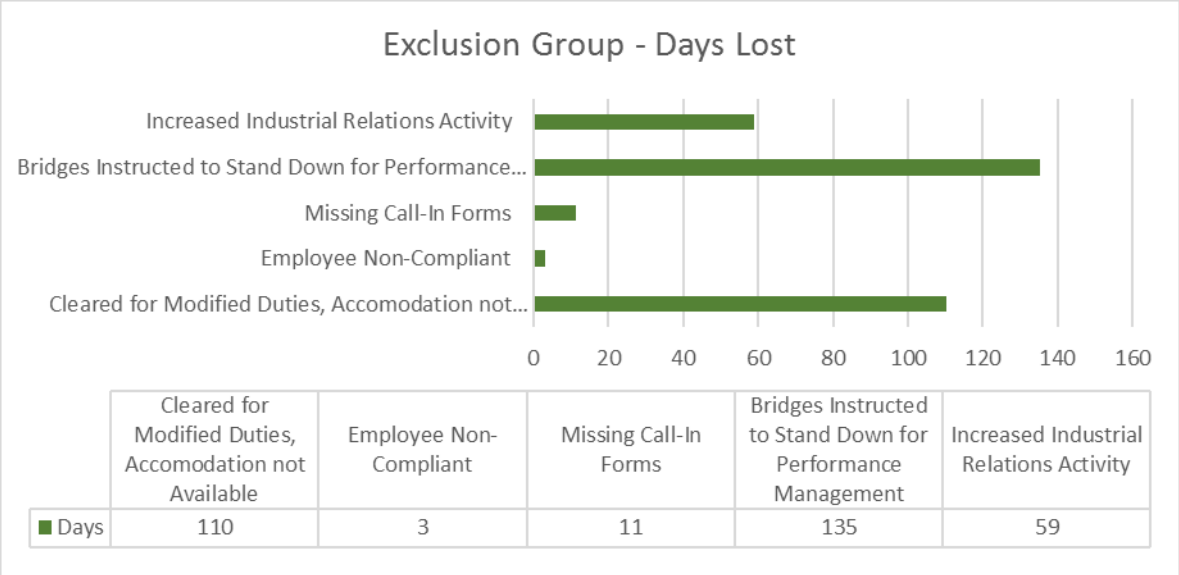
Exclusion Group:

	Group Name	Number of Employees	Percentage of Employees	Definition
1	Reduction Group	50	66%	Group of Employees in which Bridges Health Managed Absences for. This group experienced reductions in absences.
2	Increase Group	15	20%	Group of Employees in which Bridges Health Managed Absences for. This group experienced increases in absences.
1&2	Pilot Group	65	86%	Group of Employees in which Bridges Health Managed Absences for. Includes reduction group and increase group (1&2).
3	Exclusion Group	11	14%	Group of Employees in which Bridges Health Managed Absences for. However, due to internal circumstances within the City of Saskatoon, our interventions were not able to be utilized. This is further explained in the report.
	Total	76	100%	

The total number of absence days excluded from Bridges Health Results total 318 days.

The reason being is Bridges Health experienced barriers beyond our control, which are further explained below.

11 employees (14%) who were referred to Bridges Health for assistance were excluded from Bridges results due to the following:



Please see the following page for further details and elaboration of the exclusion group.

Exclusions Group Continued:

Below is an examples of detailed accounts showing specific employees and summaries of extended absences and lack of accommodation.

Employee Name	Clearance Date	Actual Return to Work Date	Variance	Notes
Withheld	12/08/2016	12/19/2016	10 Days	Modified duties could not be made available within XXX restrictions. XXX returned to full hours / full duties on December 19, 2016.
Withheld	10/24/2016	1/3/2017	45 Days – COS 25 Days - Employee	Modified duties could not be made available within XXX restrictions until December 8, 2016. Post December 8, 2016 was due to the client's resistance with using the telephone.
Withheld	11/23/2016	12/5/2016	11 days	Modified duties could not be made available within XXXX restrictions. XXXX returned to full hours / full duties on December 5, 2016.
Withheld	10/13/2016	1/23/2017	101 Days	Advisement of clearance for modified duties sent to City of Saskatoon on October 31, 2016. Client had internal conflicts to resolve internally. On November 7, 2016, Bridges Health was asked to step back and let the City of Saskatoon administer their internal process. Client's file was transferred to Alaina on January 6, 2017. Client took the required training and became an operator on January 23, 2017
Withheld	12/30/2016	1/25/2017	30 Days	Modified duties could not be made available within XXXX restrictions. XXXX started performing modified duties (driving) on January 25, 2017.

Additional Information - Case Studies and Success Examples:

1. **Client** –
    - **Referral Date** – May 9, 2016
    - **Barrier** – Increased industrial relations issues, lack of cooperation to the process.
    - **Summary** – After five months, Bridges Health Consultant was able to establish trust and a professional relationship with the employee. After this relationship was established, the employee was comfortable coming to Bridges Health without union representation and as a result, a Bridges Health Consultant was able to work with the employee and their care provider to have them put on a three (3) week Return to Work Plan in November, 2016. As of December, 2016, the employee is now working full hours / full duties. The employee also personally thanked the Bridges Health Consultant for the assistance with returning them to the workplace.

2. **Client** –
    - **Referral Date** – March 17, 2016
    - **Barrier** – Prolonged return to full hours due to care provider.
    - **Summary** – A Bridges Health Consultant was able to encourage the employee to progress to full hours with the support of their care provider. A Bridges Health Consultant created a three (3) week Return to Work Plan in December, 2016 that was sent to the employee's care provider. The employees care provider was not responding to the Return to Work Plan that was sent. Due to the time sensitive nature, a Bridges Health Consultant was able to obtain the required information from the employees care provider by attending the clinic and waiting for hours to see their care provider. As of December, 2016, the employee is now working full hours.

3. **Client** –
    - **Referral Date** – August 29, 2016
    - **Barrier** – Employee was impairment focused and Bridges Health was receiving contradictory medical information from their care providers, resulting in the employees prolonged absence from work.
    - **Summary** – A Bridges Health Consultant was able to return the employee to the workplace at full hours / modified duties as of January, 2017. This was achieved by a Bridges Health Consultant writing a number of letters to their care providers outlining the contradictory information, and by sourcing a physician approved aid.

4. **Client** -
    - **Referral Date** – August 10, 2016
    - **Barrier** – The Employee was calling in to request the use of sick benefits when no objective medical information could be obtained to validate this use of sick time.
    - **Summary** – A Bridges Health Consultant was able to establish trust and a professional relationship with the employee. After this relationship was established, the Bridges Health Consultant was able to determine the appropriate type of treatment for this employee and assistance was provided with the referral. As a result, the employee is seeking appropriate assistance resulting in a reduction of sick benefits being used. The employee personally thanked the

Additional Information - Case Studies and Success Examples Continued:

Bridges Health Consultant for their assistance navigating them to the appropriate care provider.

5. **Client** –
    - **Referral Date** – November 4, 2016
    - **Barrier** – Employee is unable to operate a motor vehicle due to the employee's current medical condition.
    - **Summary** - A Bridges Health Consultant is currently assisting the employee with their medical condition. A Bridges Health Consultant was able to obtain restrictions from the employee's care provider and source modified duties with the City of Saskatoon. Due to the employee being unable to operate a motor vehicle at this time, a Bridges Health Consultant encouraged the employee to catch public transit to perform the modified duties available, this is currently being done to date.

6. **Client** –
    - **Referral Date** – November 3, 2016
    - **Barrier** – N/A
    - **Summary** – A Bridges Health Consultant is currently assisting the employee with their medical concerns. The Employee had an appointment with their care provider to receive test results and the employee did not have any friends or family that could attend the appointment with them. The employee contacted a Bridges Health Consultant and asked if they would attend the appointment with them as they were nervous about the results they were going to receive. A Bridges Health Consultant attended the appointment and was there for support and obtain the appropriate information to expedite the employee's health care needs.

7. **Client** –
    - **Referral Date** – January 24, 2017
    - **Barrier** – N/A
    - **Summary** – An employee had a health care incident scare. This employee is an ATU Steward and contacted a Bridges Health Consultant for a self referral. Bridges Health later received an official referral to advise them of the incident and request assistance. The employee's referral was later received, the employee's intake meeting was conducted and consent was provided to assist this employee with expediting their health care needs.

Long Term Absences

1. **Client** –
    - **Referral Date** – November 4, 2016
    - **Summary** – This employee has a chronic medical condition. A Bridges Health Consultant was able to establish a professional relationship with this employee to assist them with navigation through the health care system. A Bridges Health Consultant was able to assist the employee by expediting their wait time for surgery and worked with the employee to return her back to the workplace at full hours.

Additional Information - Case Studies and Success Examples Continued:

2. **Client** –
    - **Referral Date** – May 3, 2016
    - **Summary** – This employee has an acute medical condition. A Bridges Health Consultant was able to assist this employee with alternative care options and the Bridges Health Consultant was able to assist the employee with being placed on the cancellation list. This employee was seen within one week of their referral to the specialized clinic.

3. **Client** –
    - **Referral Date** – September 9, 2016
    - **Summary** – This employee has an acute medical condition. A Bridges Health Consultant was able to assist this employee with alternative care options (i.e. Chiropractic treatment, Physiotherapy treatment, Acupuncture treatment and Spine Pathways Clinic). A Bridges Health Consultant was able to assist the employee with referrals and being placed on cancellation lists to expedite their treatment needs.

Thank you for the opportunity to provide this service to the City of Saskatoon. We look forward to a continued partnership with the Saskatoon Transit Department and as well to enhancing our services to additional departments.

Yours Truly,

Leon Ferguson,
Vice President

Adelle Stewart,
Director of Operations

Hydropower Project – Memorandum of Understanding with the Saskatoon Tribal Council

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That the City Solicitor prepare a Memorandum of Understanding with the Saskatoon Tribal Council in accordance with the general terms set out in this report for the purpose of studying the financial feasibility of a hydropower project at the Saskatoon weir, and that His Worship the Mayor and the City Clerk be authorized to execute the Memorandum of Understanding under the Corporate Seal.

Topic and Purpose

The purpose of this report is to request approval to enter into a Memorandum of Understanding (MOU) with the Saskatoon Tribal Council (STC) to study the financial feasibility and joint ownership of a proposed hydropower project on the South Saskatchewan River at the Saskatoon weir.

Report Highlights

1. Administration has negotiated a potential MOU with the STC that outlines the general terms for a mutually beneficial partnership to study the development of a proposed hydropower project at the weir.
2. SaskPower may be interested in purchasing electricity generated by the hydropower station under a long-term power purchase agreement facilitated by the First Nations Power Authority. One of the next steps for project development would be to engage in discussions with SaskPower to confirm their interest in purchasing electricity from the hydropower station.

Strategic Goals

This report supports the short- and long-term strategies to strengthen relations with local Aboriginal organizations under the Strategic Goal of Quality of Life, and the 2017 commitment to the Truth and Reconciliation Commission Calls to Action.

This report also supports strategies to increase revenue sources and reduce reliance on residential property taxes under the Strategic Goal of Asset and Financial Sustainability, and to create new sources of green energy where feasible under the Strategic Goal of Environmental Leadership.

Background

Pre-feasibility engineering and environmental baseline studies of several possible design concepts for a hydropower station at the Saskatoon weir were completed in

2009, and also considered a proposed pedestrian walkway and white water park feature. The studies concluded that the proposed development was technically feasible, and could be economically viable depending on the market value of the electricity produced.

At its meeting held on March 27, 2017, City Council directed Administration to prepare a MOU with STC that outlines a joint ownership model for the hydropower station. Joint ownership between the City and STC will bolster all aspects of the project and benefit both parties. The partnership will strengthen applications to senior governments for rates and capital contributions, and the combined resources of both agencies result in a stronger project team during the investigatory and construction phases, should the project proceed to construction.

Any consideration for a white water park feature would require leadership interest from either a developer, private operator, or non-profit organization. A separate report is planned to be presented to the Governance & Priorities Committee for consideration this fall, and will discuss the water park in the context of a Master Plan for Sport, Culture, and Recreation facilities. Administration will need direction as to whether the water park will be included in the development by December 2017.

At its meeting held on June 12, 2017, the Standing Policy Committee on Environment, Utilities and Corporate Services received a request from the Saskatoon Environmental Advisory Committee that the Administration discuss other renewable power opportunities along with potential partnerships with STC. High-level discussions have taken place and there may be interest in other partnership opportunities in the future for different types of renewable power development, including solar photovoltaic projects. A separate report is planned to be presented to the Standing Policy Committee on Environment, Utilities and Corporate Services this fall regarding opportunities for solar power development in Saskatoon.

Report

General Terms of the MOU

Administration met several times with STC since March 2017 to establish the general terms of an MOU that will meet the goals of both parties. The MOU has been defined based on the general terms set out in this report, as follows:

1. Through the MOU, the STC will see economic, employment, and educational opportunities during the construction and operation of the proposed hydropower station.
2. If the project is determined to be financially feasible and agreeable to both parties, it is intended to then issue a Request for Proposals (RFP) to enter into a contract with a third party hydropower development partner to develop, construct, and operate the project for a negotiated term (e.g. 30 years). This would require negotiating a further Business Agreement that would be brought back to City Council for approval prior to the issuance of an RFP.
3. During this term, the hydropower development partner would be required to pay an annual dividend to be shared equally by the City and STC. The City could use

its share of the dividend to pay for the cost of a proposed pedestrian walkway over time.

4. At the end of the contract term, the hydropower development partner would be required to turn over the hydropower station to the City and STC in serviceable condition to operate and maintain from that time onward in order to provide a long-term revenue source to both parties.

Electricity Sales to SaskPower

One of the next steps for project development would be to submit a proposal to SaskPower to confirm their interest in purchasing electricity from the hydropower station. The STC is working with the First Nations Power Authority, who has a Master Agreement with SaskPower to procure market-value electricity from First Nations led projects that meet SaskPower's supply development plans and its commitment to renewables.

Options to the Recommendation

The City could approach SaskPower independently to negotiate a Power Purchase Agreement for the proposed hydropower station. This option is not recommended as the City would not realize all of the benefits of a partnership with STC identified in the report.

SL&P could interconnect the hydropower station to its own grid and offset bulk power purchases from SaskPower. This would be a wholly City led project, and the City could use the project towards its corporate or community emissions targets. This option is not recommended as the internal rate of return is lower than all other development concepts.

Public and/or Stakeholder Involvement

Consultation will be ongoing with stakeholder groups such as the Meewasin Valley Authority, Saskatchewan Ministry of Environment, Water Security Agency, University of Saskatchewan, community-based special interest groups, and local residents.

Communication Plan

While many of the project details are unknown until further work is carried out, citizens can find information about the project at saskatoon.ca/hydropower. Communications planning will be ongoing as the project progresses and will include website updates, media relations, and advertising where required to promote opportunities for citizens to engage.

Financial Implications

Project investigation to date has been funded from Capital Project #1281 - Sustainable Power Generation Options. The capital cost for the hydropower station is estimated at $60 to 65 million, and could be funded by a third party hydropower development partner. The City may be able to construct the pedestrian walkway at no direct cost to the City, rehabilitate the existing weir, and inherit a long-term revenue producing asset in the future.

Other Considerations/Implications

There are no policy, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Approval of the recommendation in this report does not give the Administration authority to proceed with procurement or construction. The MOU is simply an agreement to jointly investigate the next steps of the project. Subsequent reports will provide City Council with the information it needs to determine whether or not it will proceed with further development of the project.

If the project is determined to be financially feasible and agreeable to both parties, it is intended to then issue an RFP to enter into a contract with a third party hydropower development partner to develop, construct, and operate the project for a negotiated term (e.g. 30 years). Administration will present a proposed Business Agreement with STC for City Council approval in late 2017, to include the terms of a partnership and proposed strategy for developing the hydropower project.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by:	Kevin Hudson, Metering & Sustainable Electricity Manager
Reviewed by:	Trevor Bell, Director of Saskatoon Light & Power
Approved by:	Angela Gardiner, Acting General Manager, Transportation & Utilities Department

EUCS KH - Hydropower Project MOU with Saskatoon Tribal Council.docx

Request to Exceed in Excess of 25% of Contract No. 16-0053, Fletcher Road Sewer Upgrades

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That the Administration be given approval for Contract No. 16-0053, Fletcher Road Sewer Upgrades to exceed 25% of the contract value.

Topic and Purpose

The purpose of this report is to request approval to exceed 25% of the contract value on Contract No. 16-0053 which is being executed under Capital Project #1501-1 - Trunk Sewer - Upgrade to Fletcher Road Sanitary Lift Station.

Report Highlights

1. Capital Project #1501-1 - Trunk Sewer - Upgrade to Fletcher Road Sanitary Lift Station provides funding for twinning the sanitary trunk on Fletcher Road between Buckle Avenue and the lift station, and upsizing the current force main leaving the lift station to increase capacity in the southwest industrial area.
2. Inaccurate information and aging infrastructure has caused redesign and schedule delays.

Strategic Goal

The report supports the Strategic Goal of Sustainable Growth as work completed under this contract will provide additional sanitary capacity and water main infrastructure in the Fletcher Industrial area.

Background

In 2016, the City awarded Contract No. 16-0053, Fletcher Road Sewer Upgrades. The scope of work was to install a force main along Fletcher Road from the lift station to 11th Street West, a gravity sewer main from Buckle Avenue to the lift station, as well as roadway resurfacing.

During the 2016 season, the Fletcher Road project experienced multiple challenges and delays, the majority which were due to inaccurate historical drawings and old water main valves which were leaking and required replacement. Water infiltration caused unstable trench conditions requiring over excavation, and additional road restoration.

Report

Scope of Work

During the 2017 construction season, the project continues to experience delays due to aging infrastructure and inaccurate information. There have been multiple instances

where inaccurate data of existing utilities and as-built records have resulted in redesign and delays. Water from old infrastructure entering the trench continues to be an issue. When trenches/slopes become saturated, the walls of the trench will fail creating a safety hazard, therefore, over-excavation is required to ensure a safe and suitable trench for workers.

The contractor continues to work on this project with the next steps being the two intersections, one at Buckle Avenue and Fletcher Road, and the other being the east intersection of 11th Street West and Avenue W South. Preliminary investigation of the 11th Street West intersection has indicated that hydrocarbons are present. Additional measures will need to be taken to address the environmental issues and imported fill material is expected to be required to complete the work.

Public and/or Stakeholder Involvement

The Fletcher Road sewer project is located in the southwest industrial area of Saskatoon and nearby businesses have been engaged along the way. At key junctures, all affected business owners are provided with an in-person update by a member of the project team. Moving forward, public information sessions may be considered for these primary stakeholders.

As work continues on the Fletcher Road project, there will be traffic impacts at new locations such as the east intersection of 11th Street West and Avenue W South. The City will continue to engage all adjacent businesses and any other primary stakeholders. Consultation will also be carried out with Dangerous Goods Routing to set out a plan for rerouting trucks and other transport vehicles that use 11th Street West.

Communication Plan

Construction and the resultant traffic impacts will be communicated in the standard ways including road signage, construction notices, Public Service Announcements, service alerts, Daily Road Report, and through updates to web content and applications at saskatoon.ca.

Policy Implications

According to Policy A02-027, Corporate Purchasing Procedure, City Council approval is required for contract increases above 25% of the original contract value.

Financial Implications

Details of the estimated project cost that pertain to Contract No. 16-0053, Fletcher Road Sewer Upgrades are as follows:

Anticipated Final Contract Cost	$2,474,803.53
Less Original Contract Cost	(1,803,613.00)
Subtotal Cost over the Original Contract Cost	$ 671,190.53
PST (6% on Change Order No. 2)	29,449.75
Change Order Amount being requested	$ 700,640.28

There is sufficient funding in Capital Project #1501-1 - Trunk Sewer - Upgrade to Fletcher Road Sanitary Lift Station to cover the additional funding requirements.

Environmental Implications

In approximately one month, work will begin at the east intersection of 11th Street West and Avenue W South at the main gate of Suncor Industries. There are concerns that there may be contaminated material within the zone of excavation at this location and City of Saskatoon Environmental Engineers will be consulted to provide support.

Other Considerations/Implications

There are no options, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

Contract No. 16-0053, Fletcher Road Sewer Upgrades is planned to be completed in 2017.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by:	Jim Donohoe, Project Engineer, Construction & Design
Reviewed by:	Matt Jurkiewicz, Senior Project Management Engineer
Reviewed by:	Celene Anger, Director of Construction & Design
Approved by:	Angela Gardiner, Acting General Manager, Transportation & Utilities Department

EUCS JD – RtoE in Excess of 25Perc – Cont No. 16-0053 – Fletcher Rd Sewer Upgrades

Recovery Park – Request for Proposals for Scale House Design and Construction Management

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That a Request for Proposals be issued for specialized design services for the scale house and occupied buildings associated with Recovery Park.

Topic and Purpose
The purpose of this report is to seek approval from City Council to issue a Request for Proposals for the specialized design services required to design and construct the scale house facility and required building structures for staff.

Report Highlights
1. A multi-disciplinary internal City team is finalizing the design, drawings, and tender package for the majority of Recovery Park, with the exception of the scale house and occupied buildings.
2. The specialized design skills for the scale house and ancillary equipment will require the services of private consulting engineer firms.

Strategic Goal
This report supports the Strategic Goal of Environmental Leadership. Construction and Demolition (C&D) recycling and yard waste composting programs respond directly to the four-year priorities to promote and facilitate city-wide composting and recycling and eliminate the need for a new landfill by diverting waste for re-use. Recovery Park also supports the 10-year strategies to improve the quality and reduce the quantity of storm water run-off going to the river, reduce greenhouse gas (GHG) emissions, and address soil-quality issues on City-owned properties. Recovery Park will also support the Performance Target of diverting 70% of waste from the landfill by 2023.

Background
On January 25, 2016, City Council awarded development of a business case and options for delivery models for Recovery Park to KPMG.

On November 28, 2016, City Council consolidated existing capital funding of $7M for the construction of Recovery Park.

On May 23, 2017, City Council approved Administration preparing and releasing a Request for Proposal(s) for the design and construction of Phases 1 and 2 of Recovery Park.

Report
Internal Design Team
An internal team lead by Environmental and Corporate Initiatives has begun the delivery of the Recovery Park project, with significant collaboration with a number of divisions

throughout the City. An integrated project team has been formed to ensure strong project alignment and efficient project delivery as follows:

- Construction and Design division is preparing detailed designs and the tender package for the civil works for the Recovery Park site.
- Major Projects is providing project management oversight.
- Transportation division is providing engineering related to roadway design.
- Saskatoon Water division is providing engineering services associated with the stormwater management and will be engaged regarding site utilities.
- Saskatoon Light & Power division will be engaged regarding exterior lighting and site utilities.
- Parks division is being engaged for site landscaping.

Specialized Scale House Design Services Required

While Administration is performing the majority of the design, tendering, and project management of Recovery Park, specialized skills are required for the design, inspection, and commissioning of the new scale house and other ancillaries (e.g. radiation detection, automated scale and systems, and shelters/buildings for staff). Therefore, Administration is recommending that a consulting engineer be hired to design the components of Recovery Park that are outside the engineering expertise of internal staff.

The consultant will also be asked to provide a second opinion with regard to cost estimating and will be part of a value engineering exercise intended to ensure costs are minimized. The City requires these services to be in place by October in order to complete their first Work Packages prior to the release of the tender for the Recovery Park site civil works and roadway modifications later this year.

Options to the Recommendation

City Council may choose to instruct Administration to complete the work internally. This is not recommended as the City would be required to hire additional qualified staff for a relatively short-term project.

Financial Implications

Based on a percentage applied to a range of estimated construction costs, the budget for consulting fees is $400,000. This funding is available in Capital Project #2050 – Recovery Park. These fees are consistent with typical engineering fees for a project of this scope. The RFP will be structured to break down the work into phases to control costs and the scope of work performed.

Safety/Crime Prevention through Environmental Design (CPTED)

CPTED will be integrated into the design of Recovery Park and a requirement of the RFPs for completion of the design and construction of the facility.

Other Considerations/Implications

There are no public and/or stakeholder involvement, communications, policy, environmental, or privacy implications or considerations.

Due Date for Follow-up and/or Project Completion

Due to the time-sensitive nature of this procurement, the Administration will seek approval for the award of RFP from City Council in September. Normally a report on the award of the RFP would be reviewed at Standing Policy Committee first. Administration also intends to release the RFP after receiving approval from this Committee (targeting August 16, 2017). If on August 24, 2017, City Council does not approve the recommendations in this report the RFP will be cancelled and removed from SaskTenders.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by:	Chris Richards, Energy and Sustainability Engineering Manager
Reviewed by:	Michelle Jelinski, Senior Project Engineer, Water & Waste Stream
	Scott Theede, Project Engineer, Water and Waste Stream
	Mark Shaw, Environmental Operations Manager, Water & Waste Stream
	Brenda Wallace, Director of Environmental & Corporate Initiatives
	Dan Willems, Acting Director of Major Projects & Preservation
	Celene Anger, Director of Construction & Design
Approved by:	Jeff Jorgenson, Acting General Manager, Corporate Performance Department

CP – EUCS CR – Recovery Park – Request for Proposals for Scale House Design and Construction Management.docx

Compost Sale Strategy

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That a pilot program for providing small quantities of compost to residents at no charge, be approved; and
2. That a rate of $15 per cubic yard be approved for bulk purchases of materials from the compost depots, including finished compost, mulch, topsoil and fire logs.

Topic and Purpose
The purpose of this report is to outline a proposed compost sale strategy, including a no-charge pilot program for residents and a bulk rate for larger quantities of compost materials.

Report Highlights

1. Finished compost material will be available later this season. In response to requests from the community, the Administration is proposing a new strategy to make compost available to residents at no charge.
2. A Dig-Your-Own compost pilot program could be implemented in the fall of 2017. This approach would significantly reduce costs and resources required to administer a sales program. A pilot program can also help gauge the level of community interest in compost for future planning purposes.
3. Bulk sales of compost materials could help generate revenue to offset the costs of operating the depots as well as reduce hauling costs for the City. Administration recommends that a bulk rate of $15 per cubic yard be approved for finished compost, mulch, topsoil and fire logs from the depot.

Strategic Goal
The initiatives described in this report support the Strategic Goal of Environmental Leadership by facilitating city-wide composting and helping to eliminate the need for a new Landfill by encouraging the reuse of materials. Using compost and mulch also contributes to the 10 year strategy to improve the quality and reduce the quantity of storm water run-off that is going into the river.

Background
On April 16, 2012, Administration reported to City Council that there was enough finished compost material to start providing material to the general public.

On June 24, 2013, City Council approved the recommendations in the Composting Program Fees 2013 and 2014 report; specifically that finished compost be made available for sale to the general public at $5 per 20 litre bag.

On May 20, 2014, City Council adopted bulk sale prices for compost and mulch as identified in the Composting Program Bulk Sales report.

Report

Requests for Finished Compost

The City Compost Depots generate a good-quality, local source of compost and mulch. The Administration receives ongoing inquiries from residents regarding how to access this material; however, there has been no program in place since the compost and mulch sale pilots in 2013 and 2014. Past sale events were limited to certain dates and were costly and time-consuming to administer. They also required significant human and financial resources that were not readily available and compost sale revenues did not cover the costs of administering the sales. In 2015 and 2016, funding pressures limited the ability to fully process all materials. Some finished materials were provided to Parks and community gardens, however, no public sales were offered in 2015 or 2016.

In the spring of 2017, the Administration released an Expression of Interest to determine whether there were any businesses or organizations who were interested in delivering a compost sale program for residents on behalf of the City. No responses were received.

Finished compost will be available later in 2017 and the Administration has been reviewing options to meet the community's requests for compost materials, while maintaining fiscal responsibility. Based on requests from residents and lessons learned from past compost sales, the Administration is proposing a new, low-cost strategy to make this material readily available to residents through a Dig-Your-Own compost program.

Dig-Your-Own Compost Pilot Program

Commencing in the fall of 2017, the Administration is proposing to offer small quantities (less than one cubic yard) of finished compost or mulch to residents who visit the West Compost Depot during regular operating hours. The total quantity available will be dependent upon the inputs this season, as well as quantities required by Parks and community gardens. The material for residents will be offered on a first-come, first serve basis.

A Dig-Your-Own compost program is anticipated to significantly reduce costs associated with staffing, labour and cash handling requirements of a public compost sale, while providing residents with the opportunity to benefit from the community compost inventory. Furthermore, a pilot compost sale program can help determine the level of interest for compost in the community and can provide data for planning or designing a permanent option for future compost sales. Compost sales can also encourage new or continued use of the compost depots, which in turn diverts more materials away from the Landfill.

This program is intended to provide residents with locally produced compost and mulch, which can help generate awareness of the benefits of compost. For residents interested

in larger quantities, as well as businesses or organizations who may be interested, the Administration is proposing a bulk sales option for materials from the compost depots.

Bulk Rates for Large Quantities of Materials

In 2014, the rates for compost and mulch were based on recovering costs of processing those materials. With compost rates at $12 per cubic yard to $50 per cubic yard (depending on load size) and mulch rates at $20 per cubic yard, the bulk sales program resulted in little interest and low sales and may have been due to the price point. The Administration proposes that a new rate of $15 per cubic yard be approved for bulk sales. Although the proposed rate would not recover full processing costs, the sale of these materials could provide a revenue source to offset the operating costs of the compost depots. Furthermore, in order to ensure there is adequate space to accept new materials at the depots, the City may incur costs to transport finished material. The materials removed by residents and bulk sales would be a cost savings for any future material hauling. The bulk rate would apply to anyone (residents, organizations or businesses) who may be interested in obtaining materials from the compost depot. Pending availability, these materials could include finished compost, mulch, topsoil, and fire logs.

Options to the Recommendation

City Council may choose to not proceed with the Dig-Your-Own Compost pilot program at this time. Alternatively, City Council may choose to establish a rate for small quantities of compost for residents. This option is not recommended as there is currently no funding or resources available to manage the cash handling and financial controls that are required to meet internal control standards.

City Council may also choose to set a different rate for bulk sales of materials from the compost depots which could be greater or less than the proposed price of $15 per cubic yard.

Communication Plan

A communications strategy for the Dig-Your-Own compost and mulch program will include a news release, news conference, social media messaging, depot signage, and updated information on the saskatoon.ca/compost website. Bulk rates for compost materials will also be posted on the website.

Financial Implications

The Compost Depot Operations fall under the Waste Services Utility. Costs associated with a Dig-Your-Own compost program are anticipated to be minimal since existing depot staff and resources will be utilized. Any revenue received from bulk sales will be used to offset the cost of operating the depots.

At this time, only a preliminary estimate has been made. The Administration estimates that the sales volume will be approximately 5,000 cubic yards of the 10,000 cubic yards in inventory, resulting in potential revenues of $75,000. Small, non-charge annual volumes could be up to 300 cubic yards or the equivalent of $4,500 in foregone

revenue. Administration will include sales volumes and additional program updates in the Integrated Waste Management Annual Report.

Environmental Implications

Using compost and mulch in yards and gardens absorbs and slows down storm water run-off which can reduce potential pollutants from entering the river. The use of compost also increases the soil's ability to hold water, which reduces the need for outdoor watering.

In addition, compost fertilizes and improves soil structure, reduces soil compaction, and boosts the number of good microbes in the soil. Mulch keeps soil temperatures more consistent, reduces weed growth, attracts beneficial insects, and protects plants over the winter.

The use of compost and mulch directly supports the goals of the City of Saskatoon's Healthy Yards program, which provides education and training on composting, outdoor water conservation, storm water management, growing food, boulevard gardening, pesticide reduction, and other healthy yard practices.

Other Considerations/Implications

There are no public and/or stakeholder involvement, policy, privacy, or CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion

An update on the compost sale strategy will be provided in the 2017 Integrated Waste Management Annual Report.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by:	Michelle Jelinski, Senior Project Management Engineer, Water & Waste Stream Shannon Dyck, Environmental Coordinator, Environmental & Corporate Initiatives
Reviewed by:	Nasha Spence, Environmental Accounting Manager, Environmental & Corporate Initiatives Russ Munro, Director of Water & Waste Stream Angela Gardiner, Acting General Manager, Transportation & Utilities Department
Approved by:	Jeff Jorgenson, Acting General Manager, Corporate Performance Department

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Organics Opportunities

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

That Administration continue research and program development on an organics program for the Residential, Industrial, Commercial, and Institutional sectors.

Topic and Purpose

The purpose of this report is to highlight the opportunities to increase diversion of organics from landfilling. If City Council is interested in proceeding with expanded organics programs or policy, this report highlights where additional research would be required and provides an opportunity for City Council to identify where the scope of this research should be adjusted.

Report Highlights

1. 32% of Saskatoon's total landfilled waste is organics (food and yard waste); this includes 36,600 tonnes from residential sources and 41,700 tonnes from Industrial, Institutional, or Commercial Sources.
2. 58% of material collected in black carts at the curbside in Saskatoon is organic, presenting an excellent diversion opportunity.
3. Organics programs exist in most cities across Canada. Saskatoon is one of only two cities with no city-wide Curbside Collection Program for yard waste and one of only five without a Food Waste Collection Program (out of 30 Canadian cities with populations greater than 150,000).
4. To achieve 70% diversion of waste in Saskatoon by 2023, substantive policy and program changes are needed in order to divert the majority of organic materials from being landfilled. There are a number of considerations affecting program design; including options for collection and processing, role of disposal bans, whether to implement a pilot, and impact on home composting.
5. The current programs provide options for organics diversion and the Green Cart Program has grown with subscribers now constituting 11% of single-family households. However, this program as currently designed is unlikely to divert more than 5,000 tonnes annually over the next 10 years.
6. According to the Waste and Recycling survey completed by Insightrix in July 2017, 79% of residents somewhat or strongly support city-wide food and yard waste collection for all households.

Strategic Goals

This report supports the Strategic Goal of Environmental Leadership including the four-year priority to promote and facilitate city-wide composting and recycling. It also supports the long-term strategies to eliminate the need for a new landfill and to reduce greenhouse gas (GHG) emissions tied to City operations. In addition, it supports the Waste Diversion Performance Target to divert 70% of waste by 2023.

Background

On May 23, 2017, City Council received a report outlining Waste Diversion Opportunities. Organics represents a significant portion of the waste stream and was outlined as one of the first steps toward meeting Waste Diversion Performance Targets.

Report

Why Expand Organics Programs and Policy

Diversion of organics was identified within the Waste Diversion Opportunities report. Organic material not only fills up the landfill, it produces methane when it decomposes, which is a potent greenhouse gas. In 2016, 2cg completed a characterization of the waste stream in Saskatoon. The study found that organics (leaves, grass, and food waste) represent 32% (over 78,000 tonnes) of landfilled waste in Saskatoon, the single biggest opportunity for diversion.

The table below identifies the amount of organic waste generated from residential and Industrial, Commercial, and Institutional (ICI) sources.

Single-family Residential	Multi-unit Residential	Self-haul	Industrial, Commercial, Institutional	Total
29,900	3,700	3,000	41,700	78,400

Table 1: Tonnes of Organic Waste by Sector sent to Landfills in Saskatoon

Developing new organics programs and policy in Saskatoon aligns with the values for waste management adopted by City Council earlier this year. This alignment is outlined in Attachment 1.

Starting With a Curbside Organics Collection Program

While a larger volume of organic waste is generated by ICI sources, Administration recommends that organics programming focus first on the curbside residential sector for the following reasons:

- 58% of material collected in black carts at the curbside in Saskatoon is organic, presenting an excellent diversion opportunity.
- Residential waste management is considered an essential service that the City delivers: this is not the case for the ICI sector.
- Waste diversion can cost less than garbage disposal (as well as deliver other public image benefits) and therefore the majority of businesses in Saskatoon already recycle without any specific legal requirements or City-run programs in place. It is likely the ICI sector would also implement organics if appropriate facilities were in place.

It is possible that multi-unit residential collections could be implemented along with a curbside program (similar to recycling and garbage) or that collections could be encouraged through a bylaw.

The implications of establishing multi-unit residential and ICI collections and/or bylaws will be addressed in a report that the Administration is preparing for Committee on ICI Waste Management Opportunities. This report will be presented in October.

Organics Programs in other Cities

Most cities across Canada have programs and policies that require residents and/or businesses to divert organics. Attachment 2 shows all Canadian cities having populations greater than 150,000 along with the type of organics programs offered in each. Saskatoon and Regina are the only cities not currently offering city-wide curbside collection of yard waste; London, Winnipeg, and Quebec City do not have curbside food waste collection. Saskatoon is the only city with a subscription program for organics.

Organics Disposal Bans

Organics disposal bans are a policy tool that may be used to increase diversion and have been implemented in a number of centres across Canada. Bans can apply to residents and/or businesses and are designed to encourage increased use of existing programs (offered either by the private or public sectors). Bans have been found to be most effective when used to encourage businesses to use organics facilities that already exist within a community.

Additional information about this policy tool is provided in Attachment 3.

Limitations of Current Programs

The current subscription-based Green Cart Program is limited in its ability to achieve meaningful organics diversion from the residential sector compared to a city-wide program for the following reasons:

- It is voluntary. With 11% of single family households currently subscribing, 2,100 tonnes were diverted through this program in 2016.
- The current operational model is under-funded.
- It is inefficient compared to a city-wide program.

The current Highway 7 composting facility can only accept a limited amount of food waste as it generates increased leachate and odours.

Processing and Collections Considerations

There are numerous options for collections and processing of organics in Saskatoon. Attachment 4 provides a high level overview of research completed to date. If City Council is interested in proceeding with expanded organics programs or policy, additional research on implications, costs, and benefits would be required.

Potential Pilot Program

Many municipalities proceed with a pilot in advance of implementing a city-wide Curbside Organics Program. For instance, Calgary, Red Deer, and the Region of Waterloo are three recent programs that conducted pilots in advance of a city-wide program. Attachment 5 provides a discussion of the considerations for a pilot project in Saskatoon.

Home Composting

According to preliminary results from the Waste and Recycling Survey completed by Insightrix in July 2017, 21% of people say they compost their yard waste and 24% say they compost their food waste at home.

Backyard composting is a cost-effective method of reducing waste. Most communities promote home composting, while also providing curbside services to achieve efficient and larger-scale waste diversion. Saskatoon provides home composting support for residents which includes $20 rebates for compost bins as well as the Compost Coach training and education program which includes workshops, education at trade shows and events, home visits, a compost hotline, online information, videos, and marketing to promote composting. In the event City Council chose to proceed with planning for a city-wide collection program, a review of the impact on home composters and education programs would be required.

Public and/or Stakeholder Involvement

Organics is one component of a larger plan for achieving the Performance Target to divert 70% by 2023. Many of the topics within the Waste Diversion Plan being developed to achieve this objective will require community conversations and engagement. As a result, the Administration is developing a Waste Diversion Engagement Strategy and Framework to guide implementation and to ensure interactions with the community are meaningful, consistent, relevant, and effective. A report outlining details of the proposed Strategy and Framework (including organics) will be presented to the Standing Policy Committee on Environment, Utilities and Corporate Services in September.

The City periodically measures attitudes and awareness related to waste and recycling as part of its contractual obligations to the contracted recycling service providers. According to preliminary results from the Waste and Recycling survey completed by Insightrix in July 2017, 79% of residents somewhat or strongly support a city-wide food and yard waste collection for all households.

Communication Plan

A detailed communications plan would be developed to help the community learn about the options and benefits of a potential organics program. Building on existing communications materials from the subscription Green Cart and Home Composting programs, tactics could include developing a web page; social media content and outreach; videos and other advertising opportunities.

In the meantime, Administration is implementing a Waste Diversion Communications Campaign that includes social and traditional media campaigns and a waste challenge to provide the community with information on the importance of waste diversion in Saskatoon. This Waste Diversion Communications campaign will coincide with and support the Waste Diversion Engagement Strategy and Framework. Information about the campaign will also be presented to Committee in September.

Financial Implications
A few of the financial implications have been presented throughout this report. Complete and specific financial implications will be further explored if City Council directs Administration to continue research and program development.

Administration also notes that decisions related to organics opportunities will have an impact on waste utility rate setting should City Council choose to proceed with expanding the Waste Services Utility.

Environmental Implications
Diverting organic waste from the landfill offers several environmental benefits in terms of land, air, and water quality. Through the use of compost as a soil amendment in gardens or landscapes, nutrients that would normally be locked up in a landfill are recycled into the ecosystem where they are available to plants. Compost added to soils also improves moisture retention properties so rainfall run-off is reduced.

Organic material that is buried in a landfill environment will produce methane which is often released into the atmosphere. Methane is a significant contributor to climate change as it is 25 times more potent than carbon dioxide as a greenhouse gas. Diverting 78,000 tonnes of food and yard waste from landfills is estimated to reduce between 85,000 and 120,600 tonnes of carbon dioxide equivalents (the equivalent of removing between 16,000 and 23,000 vehicles from our roadways each year).

Other Considerations/Implications
There are no policy, privacy, or CPTED implications or considerations at this time.

Due Date for Follow-up and/or Project Completion
If directed by City Council to continue research and program development, a follow up report will be completed in the spring of 2018.

Public Notice
Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments
1. Alignment with Organics Opportunities with City Values
2. Organics Programs in other Cities
3. Disposal Ban on Organics
4. Collections and Processing Considerations
5. Green Cart Pilot

Report Approval
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Approved by:	Jeff Jorgenson, Acting General Manager, Corporate Performance Department

CP - EUCS AW - Admin Report - Organics Opportunities

Alignment of Organics Opportunities with City Values

Environment

- An Organics Program constitutes a critical step in approaching our Waste Diversion targets and extending the life of the landfill. Given current assumptions, Administration estimates that this could extend the life by at least 8 years.
- Finished compost can improve soil quality, reduce runoff, and conserve water when used in residential, commercial, and City landscaping applications.
- Decreased organics in the landfill results in reduction in methane production (climate change implications) and other environmental benefits.
- There is potential to produce environmentally-preferred (green) energy when anaerobic digestion technology is used to process organic material.

Social

- There are cost implications associated with a new waste program affecting the affordability of civic services and potentially impacting lower-income residents' ability to pay. However, efficiencies from moving to a city-wide program from a subscription program may make it more accessible to all demographics (especially as compared to the true cost of the current subscription program).
- Curbside collection increases convenience compared to self-hauling to a depot (it is reasonable to expect 80-90% participation in a collection program vs 10-15% utilization of depots). Composting at home remains a viable option for those choosing to do so.
    - Composting at home should still be encouraged as a preferred practise.
    - Program design can consider preferences for number and size of cart(s) based on the size of the household and home composting interests.
- Facilities must meet Ministry of Environment standards for regulatory and environmental compliance.
- An Organics Program has a positive public image as demonstrated by preliminary results from a recent random-sample survey showing that 79% of residents somewhat or strongly support a city-wide organics collection program; 8% have no opinion; 13% oppose or strongly oppose; additionally Saskatoon is currently lagging behind other centres in this area, being one of only two cities (the other being Regina) that have no city-wide collections program for yard waste.

Financial

- An Organics Program is essential if considering the life cycle cost of the landfill as it is a critical component to deferring or eliminating the need for a new landfill, instead of passing on this environmental and financial burden to future

generations (Generational Rate Equity); as noted above, landfill life is estimated to be extended by at least 8 years with organics diversion.

- An Organics Program reduces the environmental and financial burden we pass on to future generations and contributes to positives steps in climate change mitigation. Diverting 78,000 tonnes of food and yard waste from landfills is estimated to reduce between 85,000[1] and 120,600[2] tonnes of carbon dioxide equivalents (over $850,000 in savings if a $10/tonne price on carbon is instituted, please note that this would not all be diverted from the Saskatoon Landfill, so these savings would be shared).
- An Organics Program will have significant up-front costs and resource plans will need to be developed.
- Capital and replacement costs of assets such as carts, trucks and other equipment, and a facility need to be considered and weighed against other alternatives such as partnerships with commercial industry when making decisions.

[1] Source: Waste GHG Calculator (Environment Canada); Note that the results of calculations from this calculator are not intended for quantifying emission reductions, they serve only as a common basis for comparison.
[2] School Canyon Model used for the City of Saskatoon GHG inventory.

Organics Programs in other Cities

CITY (by population)	Population[1]	Curbside Food	Curbside Yard	Multi-Unit Food
Toronto, ON	2,731,571	✓	✓	✓
Vancouver, BC	2,264,823	✓	✓	✓
Montreal, QC	1,942,044	✓	✓	×
Calgary, AB	1,236,656	✓	✓	✓
Ottawa, ON	934,243	✓	✓	✓
Edmonton, AB	932,546	✓	✓	✓
Mississauga, ON	721,599	✓	✓	Pilot
Winnipeg, MB	705,244	×	✓	×
Brampton, ON	593,638	✓	✓	Pilot
Hamilton, ON	536,917	✓	✓	✓
Quebec City, QC	531,902	×	✓	✓
Surrey, BC	525,220	✓	✓	✓
Laval, QC	422,993	✓	✓	Subscription
London, ON	383,822	×	✓	×
Markham, ON	328,966	✓	✓	✓
Halifax, NS	316,701	✓	✓	✓
Vaughan, ON	306,233	✓	✓	×
Gatineau, QC	276,245	✓	✓	✓
Saskatoon, SK	246,376	Subscription	Subscription	×
Longueuil, QC	239,700	✓	✓	×
Kitchener, ON	233,222	✓	✓	✓
Burnaby, BC	232,755	✓	✓	✓
Windsor, ON	217,188	×	✓	×
Regina, SK	214,631	×	×	×
Richmond, BC	198,309	✓	✓	✓
Richmond Hill, ON	195,022	✓	✓	✓
Oakville, ON	193,832	✓	✓	✓
Burlington, ON	183,314	✓	✓	✓
Greater Sudbury, ON	161,531	✓	✓	Subscription
Sherbrooke, QC	139,565	✓	✓	Subscription

[1] Source: Stats Canada 2016

Disposal Ban on Organics

There are two types of disposal bans that can be used by municipalities to prevent identified material from ending up at the landfill – landfill bans and prohibitive (city-wide) bans. Landfill bans are defined as a range of measures to prevent or restrict the disposal of waste to landfills. A prohibitive ban aims to restrict material from entering the community to begin with.

Disposal bans are often implemented at the provincial or regional level. Bans implemented at the municipal level are challenging to enforce as there is a high potential for the material to be taken to other regional landfills not under the direct control of the City.

Successful disposal bans for organics are in place in Metro Vancouver and Nova Scotia. Ontario and Quebec are also planning organic bans in the near future.

At the municipal level, the City of Calgary plans to ban food and yard waste from City landfills by 2019 in conjunction with its new city-wide Green Cart Program; this plan has required a high level of collaboration between the City and the private waste management industry who also offer landfill services in the region.

There are administrative, enforcement, and communications implications to be considered when designing a disposal ban.

Bans are not typically implemented as a first step in diversion of any material, including organics. Administration reported on best practice approaches to landfill bans in a May 25, 2015 report to City Council entitled Implications of Landfill Bans. As identified in this report, convenient options for diverting the banned materials should be well-established in a community to enable citizens to comply with the ban.

To institute a ban, municipalities may employ the following strategy:

1. Develop Organics Processing Capacity – Processing food, yard and other organic waste material at a large scale requires a processing facility that incorporates technology appropriate to the volume of material available in the community.
2. Develop City-Wide Organics Collection Program(s) – As illustrated in Attachment 2, most large Canadian cities offer convenient curbside collection services for the diversion of food and/or yard waste to an organics processing facility. Collection services for other sectors of the community are often offered by the private sector. NOTE: Multi-unit residential properties may be considered along with curbside residential properties or may be exempted and considered with the Industrial-Commercial-Institutional (ICI) sector.
3. Require Businesses to Divert Organics – Adopt a bylaw (disposal ban) requiring the ICI sector (including hospitals, schools, offices, shopping centres, restaurants, hotels, manufacturers, warehouses and other businesses) to divert

their organic waste to a processing facility. Some businesses may also apply for permission to digest or manage their organics on-site.

4. Introduce Fees, Fines, or Outright Prohibition of Loads Delivered to Landfill Containing Organics – Some municipalities use load inspections at the landfill as a way to enforce organics diversion within the community. NOTE: The new scale constructed at Recovery Park will enable load inspections in the future.
5. Curbside Confirmation of Diversion – Some municipalities conduct curbside inspections prior to collecting residential garbage. Incidents where residents have placed organics in the garbage rather than the composting stream trigger some type of enforcement action ranging from an education notice, to non-collection, to fines. NOTE: Current recycling education campaigns in Saskatoon include inspection blitzes by Loraas to provide feedback to residents about use of recycling carts.

Collections and Processing Considerations

The purpose of this Attachment is to briefly summarize the areas of research Administration has commissioned or performed to date regarding options for waste diversion technologies, specifically related to organics.

Background

In 2014 Administration commissioned CH2MHill to prepare technical memorandums on a variety of waste diversion and clean energy options. The five memorandums (titled Organics Waste Collection Program Options and Considerations, Composting Technology Summary, Anaerobic Digestion Technology Summary, Summary of Beneficial Reuse Options for Organic Wastes, and Municipal Solid Waste Thermal Treatment Technology Summary) each present a range of options, practical considerations and "lessons learned" from existing sites. The purpose of the research was not to chart a path to maximize waste diversion or greenhouse gas emission reductions but rather to present the spectrum of options and considerations associated with each.

In 2015 Administration partnered with the Saskatchewan Indian Institute of Technology (SIIT) on a study where CH2MHill advised on technical options and considerations and operating and capital costs for organics processing at the Recovery Park site.

In 2016 Administration hired KPMG to study the business case for Recovery Park, which included a review of recently developed organics processing sites, with a focus on the potential for private sector partnership/ownership. The report concluded that anaerobic digestion could be a profitable option for organics processing, pending achievement of certain conditions such as confidence in the availability of sufficient feedstock. In addition, private sector interest in processing organics was identified (full results are available in the November 14, 2016 Recovery Park Report to Standing Policy Committee on Environment, Utilities, and Corporate Services).

In 2016 Administration hired Dillon Consulting to provide a waste characterization and Draft Waste Diversion Plan. The Draft Waste Diversion Plan summarized current technology trends for organics waste diversion.

In 2017 Administration attended the Solid Waste Association of North America (SWANA) conference. One of the presentations was on the Opti-Bag™ technology being utilized in Europe. Administration has briefly self-researched this technology following the conference.

Organic Waste Collection

There are a variety of methods to collect organic waste:

1. Direct Self Haul (organic waste producer hauls their waste to a facility); or
2. City or Contracted Collection (e.g. curbside collection from residences):

a. Curbside bag collection (manual vs. automated truck collection); or
b. Curbside cart collection (automated truck collection).

Materials can either be front-end (source) or back end (processor) separated. The implications on collections are:

1. Source Separated Options
    a. Separate carts for each material (e.g. four separate carts: garbage, recycling, organic yard waste, and organic food waste); and
    b. Separate bags for each material.
2. Co-Mingled Options
    a. Green bin that co-mingles yard and food waste; and
    b. Co-mingle organics and waste.

Generally speaking, the more costs that are transferred to the back end (to the processor), the higher the cost will be to the municipality or the customers of a utility, but the convenience and waste diversion will also be the highest if processing is in place. A balanced approach is expected to be the most preferred option. The research suggests utilizing drop off locations (e.g. Recovery Park) combined with curbside collection as being the most appropriate solution for Saskatoon. Certainty in feedstock quality and volume is critical in order to justify the business case for processing equipment/systems.

It is not uncommon for participation rates for curbside collection of organic waste to be 80-90%, compared to 10-25% for drop off depots. However, curbside collection of 100% of yard waste is problematic due to the high volumes that occur during short periods of time (spring and fall). Large fully loaded carts filled with dense wet organic material can also be very challenging for residents to safely maneuver. Designing a curbside program to fully accommodate seasonal spikes is problematic and it is preferable to provide a depot as an available option. There should be an economic and convenience incentive to self-haul to depots when loads are large in order to achieve a stable and efficient curbside collection program.

The use of automation should generally be expected to reduce collection staff injuries and absenteeism and be more efficient than manual collection. Automated collection, however, is less flexible than manual collection and requires diligent management to maintain efficiencies.

Cost for residential curbside collection programs were stated by CH2MHill in 2014 to range from $4-$8 per household per month, but costs will vary depending on local conditions and factors such as collection frequency, number of households in the program, distance to the processing facility, sharing of resources (e.g. using the same trucks for garbage and organics), etc.

Regarding options for carts vs. bags, the new Opti-Bag™ technology being utilized in Europe is a paradigm shift in the collection industry. Rather than have a separate cart for each material with automated collection, or a separate bag for each material with manual collection, separate bags are used for each material

but the bags are co-mingled in a single cart. As an alternative to this automated technology, bags could also be separated manually. When bags are delivered to a processor they are then separated based on bag colour. Companies other than Opti-Bag™ are also able to provide equipment that can sort out bags of different colours, including one supplier of equipment to an existing materials recovery facility in Saskatoon.

Source Separation into Multiple Coloured Bags, Opti-Bag Website

Delivering Multiple Coloured Bags at Sorting Facility, Opti-Bag Website

There are seven cart and bag combinations as follows:

- Two cart system where:
  - Black cart allows black garbage bags, green yard waste bags, and yellow food waste bags; and
  - Blue cart for recycling.
- Two cart system where:
  - Black cart allows garbage; and
  - Blue cart allows co-mingling or bag separation of recycling, yard waste, and food waste.
- Two cart system where:
  - Black cart that allows black garbage bags and green bags that have co-mingled yard and food waste; and
  - Blue cart for recycling.
- Two cart system where:

    - Black cart that co-mingles garbage and organics and a processing facility separates the materials; and
    - Blue cart for recycling.
- Three cart system where:
    - Black cart allows garbage;
    - Green cart allows green yard waste bags and yellow food waste bags; and
    - Blue cart for recycling.
- Three cart system where:
    - Black cart allows garbage;
    - Green cart allows co-mingling of yard and food waste; and
    - Blue cart for recycling.
- Four cart system where:
    - Black cart for garbage;
    - Green cart for yard waste;
    - Brown cart for food waste; and
    - Blue cart for recycling.

The above options show that through investment in automated separation based on bag type, automated debagging technology, and education on the use of bags, significant source separation can be achieved without requiring a cart for each material. However, in the case of the two-cart system where garbage and organics are co-mingled in the same bin, it would not be possible to bill customers based on the type of material. If there is a desire to operate a utility where customers pay a different rate for garbage compared to organics a third bin is required[1].

The choice of collection method is therefore intimately tied to model of the utility/service and desired processing approach.

Organics Processing Options

In Canada there is generally four main approaches to processing diverted organic material into a useful product:

1. Composting – Passively aerated and turned (windrow)
2. Composting – Aerated (air is mechanically forced through the compost)
3. Anaerobic Digestion (generates electricity and waste heat)
4. Thermal Systems (waste to energy)

Of the above four options the majority of municipalities have opted to utilize composting as the preferred method to process organics. However, the use of anaerobic digestion is increasing, but can only be economically viable when there is confidence that the significant capital investment can be repaid in a reasonable amount of time based on guaranteed feedstock volumes and

[1] It should also be noted that if the price differential is significant between materials (e.g. organics vs. garbage) this creates an incentive to "hide" garbage in the organics stream, resulting in increased contamination and processing costs.

negotiation of a long term and economically favourable power purchase agreement.

Composting – Passively Aerated, With Option to add Turner

Static pile composting (no aeration and limited or no turning) is generally the lowest cost option for composting. Prior to the purchase of a compost turner this was the approach utilized at the City's compost depots. This approach requires the largest land footprint and without adequate land can run into issues with processing materials fast enough to limit build-up of materials on site (decomposition takes 2-3 years). It is limited in its ability to process food waste due to the need to achieve optimum carbon to nitrogen ratios needed for composting.

Windrow composting is the most common method of composting. In this method a mechanical turner is used to mechanically aerate and break up long rows of decomposing compost. This is the method currently being utilized at the City's compost depot. Aeration is still largely a passive process but the mechanical turning of the material creates the porosity necessary to enable passive aeration. Composting usually takes 12-26 weeks depending on feedstock, weather, frequency of turning, and other factors. Through the use of specialized equipment composting time can be brought down to as low as 6 weeks.

Composting – Aerated Static Pile

In this approach the compost is mechanically aerated using a fan. They require less land space, less use of mechanical agitation, and provides significantly greater odor control than passively aerated processes. The composting process typically takes 6-10 weeks. The City of Winnipeg recently completed construction of an aerated static pile system. Facilities can be constructed outdoors or indoors and can include technologies such as a Gore-Tex™ wrap to control moisture levels, inhibit vectors, and provided further odor control. Compost turners and other mechanical systems can be utilized in combination with an aerated system. A variety of enclosures, such as containerized and tunnel systems, are also possible.

Anaerobic Digestion

Anaerobic digestion (AD) is the process of breaking down organic materials in the absence of oxygen. The process stabilizes the materials, reduces their volume, and produces "bio-gas" which is primarily made up of methane and carbon dioxide. This gas can be refined in order to be used in boilers, electric generators, vehicles, etc. Management of the feedstock is necessary to optimize the AD process. AD systems are generally defined based on the water content of the feedstock and therefore decisions around the volume and makeup of materials collected from a composting program dictate the AD technology needed to efficiently process this feedstock. A secondary treatment system is also required to manage the waste output from the process (digestate). Typically the secondary process is composting or conversion to fertilizer. Digestion time can range from 2-7 weeks depending on the technology utilized, followed by the time for the digestate to compost.

Thermal Systems

There is a wide range of potential thermal systems for processing waste, colloquially they are lumped together and called “waste to energy” or “energy from waste”. Thermal systems convert waste to a fuel that is a source of energy. They work best with a feedstock that is high carbon and high heat value, which implies a low percentage of organic materials (primarily food waste). Thermal systems are therefore not typically considered for processing of source separate organics. Anaerobic digestion is typically considered to be the preferred method to convert organic feedstock to useful energy. However, depending on the feedstock, certain feedstock, such as wood that is potentially contaminated with Dutch Elm Disease, may be appropriate for a thermal system. There are also options for thermal systems associated with processing bio-solid waste.

Green Cart Pilot

There is much to be learned through the experiences of other cities as well as from Saskatoon's own subscription Green Cart Program. Even if City Council chose to implement an organics pilot in Saskatoon, additional research, analysis and review of program options would be required before embarking on a city-wide organics program.

The following are some of the benefits of a pilot:

- Build confidence in a business plan, program options, and feasibility
- Testing for operating assumptions such as route capacity (number of carts collected per truck per day) that differ considerably from a subscription program where carts are collected over a wide-area (instead of door-to-door)
- Testing attitudes and behaviours: the subscription program selects for residents that are willing to pay for a program, meaning that they are likely more motivated than those that have it forced up on them. A pilot would be designed to test a wide variety of demographics.
- Testing different cart options and technologies, as presented in Attachment 4, there are numerous options for collection; a pilot would help identify how the community responds to these options
- A pilot, or phased approach, could help build support for the program as it would allow time for residents to get used to the idea if coupled with a communications program

Other considerations associated with a pilot include:

- A pilot is time consuming and could delay the implementation of a city-wide program. Although, given existing or planned private facilities in the region, a pilot program could likely be implemented while planning and construction for a city-wide program is ongoing (expected to take at least 3 years).
- Pilots are expensive, and best practise is to not charge fees for these services. A 2-year Curbside Green Cart pilot for food and yard waste would cost between $1-$2 million depending on the number of neighbourhoods (between 2 and 4) and the level of service (weekly year round, or weekly in summer and biweekly in winter).
- Funding opportunities may be available, for instance Federation of Canadian Municipalities (FCM) offers funding of up to $350,000 (matching funds) for pilot projects that improve waste diversion through the Green Municipal Fund.

Waste Services Utility Design Options

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Administration continue to develop a program to expand the Waste Services Utility to include variable-pricing options; and
2. That the Administration engage citizens and stakeholders on variable-pricing options based on the information presented in this report, and report back in the first quarter of 2018 with a proposed design and timeline for implementation for a utility model.

Topic and Purpose

The purpose of this report is to outline options for expanding the Waste Services Utility to include variable-pricing and the implications of each option.

Report Highlights

1. Expanding the Waste Services Utility would mean reducing property taxes and transferring the cost of some or all waste management services to a monthly bill.
2. A waste utility variable fee-for-service model based on cart size or collection frequency is more feasible and cost-effective than implementing and maintaining the infrastructure required to measure solid waste weight by household.
3. The utility will be designed using the approved community values and will be included within the process for developing the Waste Management Master Plan.
4. A variable-rate utility would provide additional incentive for people to reduce the amount of waste they put in their black garbage cart, allow the City to build a sustainable funding model, and extend the life of the Landfill. Affordability and responsiveness to citizen ability to pay is among the values established by City Council and will be considered in the design of any future waste utility.
5. Implementation of a utility fee can be timed to correspond with providing the actual service level options required to allow citizens to have control over their solid waste utility costs. Capital costs are estimated between $2.5 and $5.15 million depending on program selected. Operating funding of $200,000 will be required to support the administration of the utility.
6. When strategies for enforcement, education, and provision of adequate service are in place, an increase in illegal dumping, as a result of variable pricing, has not been a significant issue in other municipalities.
7. A successful waste diversion program is critical to deferring the closure of the landfill. The costs to close the existing landfill and establish a new landfill are estimated at $26 million and $100 million respectively, in addition to increases in operational costs due to anticipated longer haul distances associated with a newly located landfill.

Strategic Goals

This report supports the Strategic Goal of Environmental Leadership including the four-year priority to promote and facilitate city-wide composting and recycling and the long-term strategy to eliminate the need for a new landfill. It also supports the Strategic Goal of Asset and Financial Sustainability by reducing reliance on residential property taxes and setting long-term sustainable rates.

Background

In January 2017, the Administration brought a report to the Standing Policy Committee on Environment, Utilities and Corporate Services highlighting the funding gap in the business model for civic waste services, and identifying barriers in meeting the performance targets for Environmental Leadership. Administration committed to developing a Waste Management Master Plan and a list of values (environmental, social, and financial) that would be used to assess potential future business models. Funding options (i.e. property taxes, utility charges, and user fees) are a significant component when considering alternative business models.

In May 2017, City Council received the Waste Diversion Opportunities report identifying various tools and approaches to improving waste diversion in Saskatoon. The report addressed the financial performance and stability of civic waste services including alternative options for financing such as a utility fee.

On June 26, 2017, a report entitled Expanding the Waste Services Utility – Key Considerations was presented to City Council on the benefits and implications of a waste utility showing how it aligned with City values. At that meeting, City Council resolved:

> "1. That the Administration investigate a new business model for waste services that includes a waste utility; and
> 2. That the Administration report in August 2017 on a potential design for expanding the Waste Services Utility in Saskatoon."

Report

<u>Design Options for an Expanded Utility for Waste Services</u>

Major benefits of a waste utility include:

- Increased awareness of the full costs of managing waste;
- Increased sense of responsibility and stewardship for waste among citizens;
- Reward waste reduction and diversion;
- Extended life of the Landfill due to increased diversion; and
- Ability to create a sustainable funding model for waste management to ensure safe, responsible and efficient management.

Other centres that have implemented waste utilities utilize a variety of mechanisms to provide variability and control for citizens in waste costs and services. Attachment 1 provides an overview of these models.

Attachment 2 outlines several common options for introducing variable pricing in waste services along with some of the benefits, financial implications, and implementation considerations. Based on an analysis of the implications, the most feasible options for

households having curbside collections are to charge fees based on cart size or collection frequency. These options utilize existing trucks and containers, align with software systems utilized by the City for operations, and are compatible with the City's current utility billing system.

In the United States, it is common to charge by weight. Charging by weight would require on-board scales to be installed on all trucks. Weather and operational constraints would present challenges in achieving compliance with requirements under the Weights and Measures Act and Regulations governed by Measurement Canada. This option would require significant capital investment to purchase new trucks or retrofit existing equipment.

Another common option is to charge per bag as it is a relatively simple way to implement a variable fee in municipalities that have manual collection. Since waste collections are fully automated in Saskatoon, this would be an expensive and challenging change.

All utility model design options involve an investment in software, hardware and staffing to support billing, as well as capital investments including cart replacement and time required to implement operational changes. These capital implications are outlined in the attached Options and Considerations for Variable Pricing. As such, a complete variable pricing utility would take some time to implement and may need to be phased in.

Illegal Dumping and Enforcement Implications

As outlined in Attachment 3, the EPA has found that communities that have implemented variable pricing have less concerns than anticipated with illegal dumping. One study (see attached Illegal Dumping as a Result of Variable Pricing) found that 48% of cities and towns saw no change in illegal dumping, 6% felt it declined, and 19% saw an increase (27% had no information). Illegal dumping is a concern in all municipalities with or without variable pricing, including Saskatoon. The Water & Waste Stream division spends approximately $175,000 per year on clean-up and enforcement. In addition, Roadways & Operations, Parks, and Saskatoon Fire all provide additional clean-up.

Strategies to minimize an increase in illegal dumping, based on experiences from other municipalities in the United States and Canada, are summarized in the attached Illegal Dumping as a Result of Variable Pricing. A report with options for reducing illegal dumping through changes to the Waste Bylaw will be presented to the Standing Policy Committee on Environment, Utilities and Corporate Services in late 2017.

Current Financial Reality Affecting Initial Waste Utility Rate Setting

The Waste Handling Service Line is projecting an estimated $3 million deficit in 2017, which does not include projected deficits in contributions to the Landfill Replacement Reserve (LRR). The LRR is used, in part, to fund capital improvements at the existing landfill. A funding increase is needed in order to sustainably fund waste management, including appropriate transfers to the LRR, appropriate funding for landfill operating

equipment and garbage containers, addressing funding shortfalls in the green cart and compost programs, and providing operating funding for Recovery Park when it opens. Administration will present a Level of Service for waste report in September that will give City Council options for reducing this increase through service level changes.

Transition to a utility will result in a residential utility rate that will be higher than the amount currently paid by each household through property taxes. This is a result of removal of the subsidization of residential solid waste costs by the commercial sector in addition to the need to address the existing program funding gap. There would also be additional costs for the administration and communications associated with the new utility. An indicative rate which considers all of these factors is presented in Attachment 4. Note that these rates are for garbage only, and do not include recycling or organics program costs. As shown in the attached Utility Fee Considerations, the indicative rates are $11.85 for homes with individual roll-out containers and $9.50 for multi-unit dwellings.

Ability to Pay

Responsiveness to citizen ability to pay is among the values established for the design of any future waste utility. Ability to pay can be partially addressed through the design of a variable-priced model as property tax burden is shifted to a user fee that is controllable by the resident. When compared to other cities, the indicative flat rate of $11.85 (see the attached Utility Fee Considerations) is in line with what other Canadians are paying for a similar level of service. In many municipalities, deep discounts are provided for choosing the smallest garbage cart size (see the attached Utility Charges for Waste Services in Other Municipalities) which helps respond to ability to pay.

Administration recognizes that this may not be adequate, especially given that properties having lower assessment values will see a larger increase than high value properties (see the attached Utility Fee Considerations for details). Additional options could be explored:

1. Expand the City's property tax deferral program to low income households (i.e. provide this program to all age group, not just seniors);
2. Provide discounts for garbage, recycling, or green carts for low income residents. Administration notes that this approach (especially if the discount is applied to the garbage cart) is counter to the goals of a waste utility (i.e. user control of costs to incentivize waste reduction).

A number of municipalities continue to fund a portion of the costs of waste services through property taxes. In many cases, this is to reflect the fact that some waste management has public-good benefit to the entire community. This approach does provide some mitigation to the financial impact to households, benefiting ability to pay. This approach also reduces the effectiveness of the user fee as an incentive for waste reduction and diversion.

Affordability concerns can also be addressed through federal and provincial transfers and tax credits. These affordability issues are addressed more broadly in Attachment 5.

Options to the Recommendation

Option 1 – Adopt a Flat Rate Utility Fee Beginning in 2018

Charge a flat fee starting January 2018 with no variable pricing options, moving the current $8.9 million off the mill rate resulting in a reduction to property taxes. Rates will be similar to those suggested in the attached Utility Fee Considerations. There are numerous risks associated with this option which are outlined in Attachment 6. Variable pricing could be introduced at a later date.

Option 2 – Hybrid

This option would involve a portion of waste services being funded through the mill rate, and a portion through a utility charge. For example, a waste management fee of $5 per month could start being charged on monthly utility bills. Another example of a hybrid approach is to phase-in the utility charge, funding all services through property taxes for the first half (or longer) of 2018, and charging a full flat utility fee in the latter part of the year. Variable pricing could be introduced at a later date. The risks and benefits of this approach are outlined in the attached Options to the Recommendation.

Option 3 – Status Quo

The City could stay with a mill-rate funded solid waste program. This would not incentivize solid waste diversion and the current program funding shortfalls would need to be addressed through mill rate increases.

Public and/or Stakeholder Involvement

If City Council directs Administration to proceed with the recommendation, residents will be engaged on the potential models (i.e. variable pricing based on cart size, frequency, or other options) to include in the final designed utility and rate structure. In addition, waste as a utility will be linked to the engagement on the larger Waste Diversion Plan. The Administration is currently developing an Engagement Strategy and Framework to guide implementation and to ensure interactions with the community are meaningful, consistent, relevant, and effective. A report outlining details of the proposed Strategy and Framework will be presented to the Standing Policy Committee on Environment, Utilities and Corporate Services in September.

A Recycling Awareness Survey is completed biannually as part of the recycling program (most recently July 2017). Questions on implementing a waste utility were asked and the results are available in Attachment 7.

In 2010/2011, the Let's Talk Recycling Engagement included surveys and open houses. No specific questions were asked about waste as a utility, however, there were several comments asking the City to consider it.

Communication Plan

A detailed communications plan will be developed in advance of any changes to explain how waste management is funded. The communication goals are to ensure stakeholders are not surprised by any proposed changes, that they understand how funding for waste services will change, and that they know the benefits of a waste utility.

Tactics could include developing Frequently Asked Questions, utility bill inserts, webpage updates, social media outreach, and other advertising opportunities.

In the meantime, Administration is implementing a Waste Diversion Communications Campaign that includes social and traditional media campaigns and a waste challenge to provide the community with information on the importance of waste diversion. This Waste Diversion Communications campaign will coincide with and support an engagement plan for waste diversion and the waste utility.

Policy Implications

A bylaw to establish the waste management utility is recommended. *The Cities Act* provides that the City may establish waste management as a utility. *The Cities Act* does not require that the utility be established by bylaw; however, establishment by bylaw is recommended. This will provide transparency and clarity for citizens in the outlining of the program. Other City of Saskatoon utilities are established by bylaw.

Financial Implications of the Recommendation

The financial implications of options for variable priced utility models are included, where possible, in the attached Options and Considerations for Variable Pricing. Once a design is determined, through resident and City Council feedback, more details on potential rate structures will be brought forward. A capital request for development of a variable-priced model will be brought to budget if the recommendation is approved.

The setting of rates can be completed once a design option is selected and the level of waste services offered has been confirmed. A report discussing level of service associated with garbage collection will be presented to the Standing Policy Committee on Environment, Utilities and Corporate Services in September. Changes to waste diversion services are the subject of a variety of reports tabled with Committee this fall.

Engagement on the proposed models will cost $30,000. Funding is available in the Waste Characterization Capital Project.

Environmental Implications

Research conducted by the US Environmental Protection Agency (2013) of waste programs in Canada and the United States found that waste utility models may improve waste diversion rates by between 6% and 40% (depending on the recovery rate for recyclables in the community prior to implementing the pricing model). In addition, communities reported a reduction in the amount of waste disposed of between 8% and 38%.

Other Considerations/Implications

There are no privacy or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

If the recommendation is approved, the Administration will report to the Standing Policy Committee on Environment, Utilities and Corporate Services in early 2018 on the results of an engagement and recommend options for a variable rate waste utility and business

model that will be incorporated into the Waste Management Master Plan development process.

If Options 1 or 2 are approved, the Administration will report back to the 2018 Business Plan and Budget deliberations on a proposed flat monthly fee for single family and multi-family households to be implemented in January 2018.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Utility Charges for Waste Services in Other Municipalities
2. Options and Considerations for Variable Pricing
3. Illegal Dumping as a Result of Variable Pricing
4. Utility Fee Considerations
5. Solid Waste Pricing and Affordability
6. Options to the Recommendation
7. Waste Utility Survey Results

Report Approval

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Utility Charges for Waste Services in Other Municipalities

Toronto

Utility fees cover 100% of waste management services and are based on the size of a customer's garbage bin. Services include collection of garbage, recycling, food and yard waste, and household hazardous waste. Each single family utility account receives one annual rebate prorated accordingly on each utility bill. The rebate is per year, regardless of how many garbage bins a household has. The rebate is applied once (based on the largest Garbage Bin on the account) and the annual fee associated with any additional garbage bins is charged at full cost. Residential homes situated above commercial space receive curbside bin service and are included under the same cost structure as Single-Family Households. Customers can also purchase extra bag tags for $5 per bag.

Single-Family	Small (69 L or 1 bag)	Medium (132 L or 1.5 bags)	Large (246 L or 3 bags)	Extra-large (360 L or 4.5 bags)
Actual monthly cost	$20.81	$25.26	$34.30	$39.78
Monthly cost after rebate	$1.88	$11.61	$28.27	$39.78

Multi-family properties are charged a base rate of $2.18 per month (after the rebate of $17.59) plus additional fees based on the overall volume of garbage, with different rates applicable for compacted versus un-compacted garbage. The fee includes collection of recycling, organics, yard waste and household hazardous waste. Customers can also purchase extra bag tags for $5/bag or purchase carts.

Multi-Family (Front-end Collection)	Base Rate per unit per month (after rebate)	Excess Volume (yd^3)
Un-compacted (base volume = 1.917 yds)	$2.18	$14.65
Compacted (base volume = 0.985 yds)	$2.18	$29.31

https://www1.toronto.ca/wps/portal/contentonly?vgnextoid=be7852ca49632510VgnVCM10000071d60f89RCRD

Vancouver

Fees are based on the size of a customer's garbage bin. Green bin collection for organics has an additional charge which is also based on the size of the bin. Recycle BC provides recycling collection with no additional fee. Multi-Family collections also include commercial buildings. Customers can change their bin once per year for free, each additional change has a $25 additional change. Customers can also purchase extra bag tags for $2 per bag.

Single-Family	X-Small (75 L)	Small (120 L)	Medium (180 L)	Large (240 L)	Extra-large (360 L)
Monthly Fee	$6.25	$7.16	$8.50	$9.75	$12.33
Multi-Family	X-Small (75 L)	Small (120 L)	Medium (180 L)	Large (240 L)	Extra-large (360 L)
Monthly Fee	$8.00	$9.08	$10.50	$12.00	$14.91

http://vancouver.ca/home-property-development/garbage-bins-and-green-bins.aspx

Burnaby

In Burnaby, garbage is collected by the City, but is disposed of at a regional disposal facility (i.e. landfill or waste-to-energy) that is owned and operated by Metro Vancouver. Fees are based on the size of a customer's garbage bin. Green bin collection for organics has an additional charge which is also based on the size of the bin. The City of Burnaby provides bi-weekly collection to single-family households for garbage and weekly collections for recycling and yard trimmings/food scraps. Garbage is collected using roll-off metal containers, while yard trimmings/food scraps and recycling is collected in colour-coded wheeled containers. Multi-family properties receive a weekly collection service for garbage, recycling and yard trimmings/food scraps. For Multi-family properties, garbage must be bagged and placed inside the container while recyclables are collected using color coded wheeled containers.

Single-Family	X-Small (75 L)	Small (120 L)	Medium (180 L)	Large (240 L)	Extra-large (360 L)
Actual monthly cost	$6.25	$7.16	$8.50	$9.75	$12.33
Multi-Family	X-Small (75 L)	Small (120 L)	Medium (180 L)	Large (240 L)	Extra-large (360 L)
Actual monthly cost	$8.00	$9.08	$10.50	$12.00	$14.91

https://www.burnaby.ca/City-Services/Garbage---Recycling/Single-Family-Collection---Schedule/Garbage-Disposal-Fees.html

Surrey

An annual Waste Management Fee is charged through property taxes for a standard level of service which includes garbage, recycling, and organics. The City of Surrey collects organics every week; recycling and garbage carts are collected bi-weekly. Single-family households pay a flat rate of $287 per year ($23.91/month) for collection of garbage, organics and recycling, and an additional $12/month for secondary suites. Customers can upgrade to a larger garbage cart (or carts) for an additional fee.

Standard sizes are:

DwellingType	Organics Cart Size	Recycling Cart Size	Garbage Cart Size
Single Family Home	240 L	240 L	240 L
Single Family Home with Suite	240 L	360 L	360 L
Townhouse	120 L	240 L	180 L

	Base Fee (included in Property Taxes)	Additional Cart 80 L/120 L	Additional Cart 80L/240L	Replacement (upgrade) to a 360 L cart
Monthly Fee	$23.91	$11.83	$23.58	$11.83

Multi-family properties using the City services pay a flat rate of $287 per year ($23.91/month) for collection of garbage, organics and recycling.

http://www.surrey.ca/city-services/4690.aspx

Winnipeg

The majority of waste collection and recycling is funded through property taxes. Customers pay a flat rate of $57 per year ($4.75/month) for waste diversion services, this was introduced to fund new waste diversion programs such as yard waste collection and recycling depots. Standard cart size of 240 L is available to Single-family households. They can upgrade to a larger, or additional cart, for an additional fee. A cart delivery fee of $25.00 is applied or resident can pick up the cart at no additional cost.

	Additional Cart 240 L	Additional Cart 360 L	Replacement (upgrade) 360 L cart
Monthly Fee	$8.00	$10.00	$2.80

http://www.winnipeg.ca/waterandwaste/garbage/cartcollection.stm#fee

Lethbridge

Residents pay a variable fee depending on the size of their garbage bin; the fee covers the cost of garbage, recycling, and other waste programs. There is a $25.00 fee to change cart sizes. The cost of a replacement cart is $100.00.

	Reduced Size 240 L or 3 bags	Extra Large 360 L or 5 bags	Additional Cart
Monthly Fee	$19.17	$20.92	$8.75

http://www.lethbridge.ca/living-here/Waste-Recycling/Pages/Waste-Collection-Rates.aspx

Red Deer

A flat fee of $13.35 per month is charged to each single-family household for garbage, recycling, and yard waste; a flat fee of $7.05 per month is charged for recycling. Residents are allowed up to 3-100 L bags of garbage, additional bags are $1 each. Residents can request a second blue box for recycling at no charge and unlimited bags of yard waste. Multi-family properties are charged $4.20 per unit per month.
http://www.reddeer.ca/city-services/utility-billing-service-centre/customer-care/understanding-utility-rates/

North Battleford

A $10.00/month per unit flat fee is charged for garbage collection, and $6.60 for recycling collection. There are no collections for organics.

http://cityofnb.ca/mrws/filedriver/Website_--_Solid_Waste_and_Recycling_Carts_Guidelines.pdf

Calgary

The City of Calgary's garbage collection is supported through property taxes. The waste management charge ($4.90/month) helps offset the costs of disposing and managing residential garbage at the City's three landfills. A monthly fee of $8.30 and revenue from the sale of recyclable materials funds the Blue Cart Recycling program.

http://www.calgary.ca/UEP/WRS/Pages/Garbage-collection-information/Residential-services/Garbage-Collection.aspx

Regina

Garbage is charged through property taxes and recycling is funded through a flat rate of $7.60 per month per unit. Recyclables are collected bi-weekly in a 360 L cart. Garbage is collected weekly in a 240L or 360L cart size (no variable pricing).

http://www.regina.ca/residents/waste/recycle/faq/

Options and Considerations for Variable Pricing

Charges Based on Cart Size

Households choose a cart size based on their needs and are charged accordingly. Typically, larger carts cost more in order to incentivize waste reduction and diversion (i.e. reward households that recycle and compost their waste).

Collection frequency usually stays the same for all residents, although it is possible to have both variable cart sizes and varied frequency of collection to provide additional financial incentives and savings to residents.

This is the most common variable-pricing design for utilities in Canada where automated waste collection is in place. Examples include Burnaby, Toronto, Vancouver, Lethbridge, and Winnipeg. This approach gives residents direct and easy-to-understand control of their waste generation, and therefore, is considered most likely to result in increased diversion and decreased disposal. It involves relatively simple tracking and administration once the utility system is in place. The initial capital cost for carts, however, is high.

Operational Implications:

There are no direct operational savings associated with a smaller cart size as collection frequency does not change. For the most part, the existing fleet and operational process can be used; some modifications will be required to the side-loader used for collections to accommodate smaller carts. Additionally, residents will need some way to change their cart size which will require additional resources for storage, inventory, administration, and deployment. Approximately $200,000 in additional staff resources would be required to administer billing and cover the costs of communications. The City could elect to recoup all or some of these costs through a deployment fee.

Capital Implications:

A large capital expenditure is required to purchase new carts. The range is expected to be $1.3 to $3.9 Million assuming that 25 to 75% of residents will choose a different cart size. A one-time capital cost to identify and deploy smaller carts to residents that want them, along with associated changes to the City's tracking systems (CIS, Elemos) is estimated to cost between $0.75 and $1.25 Million. Any unused surplus inventory of carts will have to be collected from residents and recycled; this would also have cost implications.

Risks

- Difficult to forecast the number of carts in each size that will be required and rates are set in advance so requires contingency to be considered within the rate.
- Smaller carts can lead to overfilling, use of other people's carts, or contamination of recycling/organics carts. This may result in missed collections, contaminated recycling and organics streams, and increased bylaw enforcement (and costs).

Charges based on Frequency per Tip

Households are only charged when they put out their garbage cart. There would likely be a standard charge for the scheduled level of service, with discounts for residents who require fewer collections.

In the case of assessing discounts, in the City of Portland households can currently choose whether they prefer biweekly or monthly collection and pay a reduced fee. This may be unrealistic for Saskatoon where citizens have less experience with a broad set of waste diversion programs: therefore, it may be easier to track tips and provide an end of year rebate. A household that puts their cart out once a month would receive a deeper discount than one that uses their cart 20 times a year.

If a household requires more than the standard level of service, premium fees would be charged as extra resources (e.g. more trucks and drivers) would be required to collect more frequently. A process for this already exists where residents can request a second or larger cart (for a fee).

The number of collections need to be accurately tracked. The Elemos Software, using RFID and GPS technology installed as part of the Efficient Waste System, has been designed to register each pick-up. At this point, the system's functionality and implementation approach have been based on supporting operations rather than full-scale utility billing, which requires a significantly higher level of rigour and a review of system requirements. Use of collection frequency as a method for providing variable-pricing will therefore require improvements to the Elemos system to ensure accurate billing. This option will also require capital investment into carts and a project to identify all carts with their assigned address so there is no confusion. This option provides lower risk of hiding waste in other resident's bins as the residents choose whether their bin is placed out for collection or not.

Operational Implications:

There are operational savings associated with reduced collections such as reduced time and fuel use, as well as reduced wear and tear on trucks and carts.

Administratively, however, tracking and the associated variable billing will require significant oversight by staff, with additional people required to manage, troubleshoot, and provide customer service for this new function.

Capital Implications:

This option uses the existing fleet and carts so has much less requirement for capital expenditures. However, not all carts currently have RFID tags; costs are estimated at over $150,000 to update existing carts and ensure they are tied to the correct civic address.

Risks

- Reliability in tracking collections, and therefore missed or inaccurate billing, for each household if residents are not diligent about returning their cart to their property on non-collection days (an issue specific to back-lane collections and culd-de-sacs).
- Without a high level of oversight and administration for database reconciliation and billing, there is a risk of inaccurate billing.
- May be challenging to ensure appropriate levels of staff and trucks if number of collection points per day is unknown.
- To avoid tipping fees, residents may overfill garbage carts, use other people's carts, or contaminate recycling/organics carts. This may result in missed collections, contaminated recycling & organics streams, and increased bylaw enforcement (and costs).

Charge per Bag

All households receive a standard level of collection but have the option of paying extra for additional bags. These are usually marked with a tag that is sold through local retailers, at City Hall, or online at a rate set by the municipality (ranges from $2 to $5). This system is simple to implement from an administrative perspective as no tracking or billing is required. However, it is difficult to introduce within a fully automated collection system as bags must be loaded manually. Cities that use bag tags either still have manual collection or use it as a secondary variable-pricing option. For instance, in Toronto and Vancouver, collections are mostly done automatically, and residents choose a cart size based on expected generation. If residents need additional capacity they then purchase bag tags.

Capital/Operating Implications:

- Requires rear loader trucks to collect bags; depending on the scale of bag collection, it would range from additional vehicles to replacement of existing collections fleet; rear load collections trucks cost approximately $300,000 each and have an eight month delivery time. There are three in the current fleet: a complete replacement of the fleet would cost at least $7.2 million.
- Requires two staff per truck (one driver and one labourer to collect the bags), a doubling of the current collections FTE allocation.
- Requires implementing standard bag sizes and colour requirements.
- Requires new relationships with the retail sector to ensure appropriate stocking of the required bags.

- Any discontinued resources (e.g. automated side-loader trucks and rollout carts) must be recycled or sold.
- Re-introduction of manual collection (a practice abandoned in Saskatoon in the mid-1980's to reduce the potential for injuries and lost staff time).

Multi-unit Residential Households

A waste utility model may not have the same environmental or social benefits for waste diversion in multi-unit properties as it does for single-family households. Multi-unit properties have waste and recycling collected in communal bins. Individual residents do not have direct control over these bins and are not solely accountable for their waste generation and diversion rates. Most multi-unit dwelling homeowners and renters do not receive monthly utility bills from the City for water or recycling services; rather they are issued to a condominium corporation or a single point of contact. Therefore, most multi-unit residents would not "see" the true costs of managing waste. Some multi-unit residential households currently pay for additional collections, some control exists now for corporations or boards managing properties to reduce their extra collections.

Illegal Dumping as a Result of Variable Pricing

According to the EPA[1], communities that have implemented variable pricing have found that illegal dumping is less of a concern than anticipated. One study[2] found that 48% of cities and towns saw no change in illegal dumping, 6% felt it declined, and 19% saw an increase (27% had no information).

Strategies to minimize an increase in illegal dumping based on experiences from other municipalities in the United States and Canada include:

Enforcement

Successful strategies for minimizing illegal dumping require that the practice of illegal dumping be clearly established as a violation within a local bylaw. Enforcement measures often allow enforcement personnel to search abandoned trash for indications of its origins. Fines or other penalties also are usually included as part of these ordinances.

In Saskatoon, the Waste Bylaw (8310) already has provisions for illegal dumping; however, a report will be tabled at the Standing Policy Committee on Environment, Utilities and Corporate Services in September to suggest amendments to expand the definition of illegal waste, propose an increase in fines for illegal dumping, and introduce more effective ticketing.

Adequate Capacity

The desire for illegal dumping is reduced if the municipality ensures that residents have as many legal options for waste disposal and diversion as possible with adequate capacity. Saskatoon provides 360 L of garbage capacity collected every 2 weeks, with additional weekly collections between May and September. In addition, each curbside property has 360 L of recycling capacity every 2 weeks.

Specific to recycling, in a survey completed in July 2017, 93% of people indicated they were satisfied or very satisfied with the amount of room in their blue cart (single family) and 85% with the amount of room in their bin (multi-family).

Education and Outreach

In tandem with enforcement, communities typically report that public education and outreach can help to prevent illegal dumping from becoming a problem. Simply informing residents about the program and how they can participate will facilitate greater compliance with its rules and procedures. To help allay residents' concerns, communities also can include information in their outreach efforts about how they plan to use enforcement and penalties to control illegal dumping.

[1] https://archive.epa.gov/wastes/conserve/tools/payt/web/html/top8.html
[2] Duke University, described in the Fall 1997 PAYT Bulletin

Utility Fee Considerations

Monthly indicative rates for single-family and some multi-unit residential households (those with individual roll-out carts), as well as the change from their average property tax payments for properties with varying assessments (10th percentile, average, and 90th percentile) are shown in the tables below.

Single-Family Households	**Low** (10th percentile: assessed value of $253,650)	**Median** (average: assessed value of $385,652)	**High** (90th percentile: assess value of $534,450)
Property Tax Currently Allocated to Waste	$3.71	$5.63	$7.81
Commercial Subsidy no longer available	$2.17	$2.17	$2.17
Additional Costs to cover current $3 million funding shortfall	$4.05	$4.05	$4.05
Even Distribution Amongst Users	$1.92	$0.00	-$2.18
Forecasted Utility Rate Estimate	**$11.85**	**$11.85**	**$11.85**

The above table highlights how an indicative utility rate may generate an increase of approximately $6 per month for households living in homes with an average assessed value ($385,652). There are 35,157 homes that have an assessed value lower than this, meaning their increase will be higher than $6, and 24,237 homes that have a higher assessed value and may have a lower increase, few would have an increase lower than $4 per month.

Multi-Unit Dwellings with Communal Containers	**Low** (10th percentile, assessed value, $157,500)	**Median** (average, assessed value, $267,836)	**High** (90th percentile, assessed value $361,100)
Property Tax Currently Allocated to Waste	$2.30	$3.91	$5.28
Commercial Subsidy no longer available	$2.16	$2.16	$2.16
Additional Costs to cover current $3 million funding shortfall	$3.43	$3.43	$3.43
Even Distribution Amongst Users	$1.61	0	$-1.37
Forecasted Utility Rate Estimate	**$9.50**	**$9.50**	**$9.50**

The above table highlights that higher costs would be paid by residents living in condominiums under a utility model. The benefits these residents may experience are difficult to realize given the nature of communal waste management required at each site.

Coinciding Service Level Changes

Administration is currently reviewing options for service level changes to civic waste services. These options may influence the costs for delivering waste services, and therefore, affect the rates under a new utility. The initial report on service levels will be presented to the Standing Policy Committee on Environment, Utilities and Corporate Services in September. Other reports that may affect service levels and costs include the discussion papers on Organics and Industrial, Commercial, and Institution (ICI) waste (to be presented in October).

Current level of service for garbage is biweekly collection in winter, and weekly collection in summer using a 360L cart; with an additional bi-weekly collection (360L) for recycling and optional biweekly green cart collection (360L) in the summer.

SOLID WASTE PRICING AND AFFORDABILITY

[1] INTRODUCTION

Currently, the City of Saskatoon pays for solid waste services—meaning garbage collection, recycling, landfill, and yard and food waste, and other ancillary services—through a mix of property taxes and user fees (or charges). On the one hand, for example, residential curbside recycling is paid for by a flat user charge, meaning each household pays the same amount per month regardless of income levels, or property values. From a public finance perspective, this is an optimal approach given that individual users of the service can be identified, they can also be excluded from receiving the service, and one person's consumption of the service, means that another person cannot consume the service at the same time.

On the other hand, residential garbage collection is paid for by residential and non-residential property taxes, meaning that the cost of residential garbage collection is based on the assessed value of the property. From a public finance perspective, there are several inherent problems with this approach, with the three most prominent being:

- it inefficiently allocates resources as the (marginal) cost for generating garbage is essentially $0/kilogram of waste;
- it violates fairness or benefits equity, as non-residential property taxpayers are paying for a service they do not receive; and
- It violates accountability and transparency issues as there is no connection to the cost of the service and the amount of household waste generation.

As the City of Saskatoon considers the establishment of a solid waste utility, and thereby charging a price for residential garbage collection, some concerns have been raised about how this policy change may affect low income homeowners. In other words, will the change to solid waste pricing increase affordability concerns for certain households? If so, how should this issue be addressed?

The purpose of this document is to provide an overview with respect to solid waste pricing and affordability, or what some refer to as "ability-to-pay". It argues that affordability issues can be addressed in three key ways: (1) the implementation of variable pricing; (2) removing the cost of solid waste services from the municipal property tax; and (3) the expansion of the City's property tax deferral program. However, the document argues strongly against special or discounted fees to address affordability concerns.

The document will address various issues and concepts as it relates to solid waste pricing and affordability. Section two addresses the main objectives for solid waste pricing. Section three addresses the issue of fairness (or equity) for solid waste pricing. Section four provides some considerations to address affordability. Section five provides a brief analysis of the relationship between incomes, age, household size and the amount of solid waste generation (or garbage) for single family households in Saskatoon.

[2] THE OBJECTIVE(S) OF SOLID WASTE PRICING

Solid waste services generally exhibit "private good characteristics" meaning that they are "rival" in consumption and users can be "excluded" from using the service.[1] As such, the public finance literature strongly supports user charges as the most appropriate way to pay for the delivery of solid waste services.

The main economic reason for imposing appropriately designed charges or fees on those who benefit from public services is to provide the public sector with incentives for using resources in the most efficient manner possible. The fee essentially rations goods and services to consumers who place the greatest value on the good or service, thus maximizing efficiency.

Because charges are based on the quantity consumed by a user, they give local government an indication of the level of service demanded thus resulting in a better match between local supply and demand. This is in contrast to a service financed through taxes where users have no incentive to limit their use and may create artificially inflated user demand that governments feel obligated to satisfy.

According to the research, "user fees promote efficiency, equity, compliance costs, visibility, and accountability, which is why the approach of local finance should generally be "whenever possible, charge"."[2] Thus, one objective for charging a fee for a service is to recover the costs of delivering that service. User fees (or charges) accomplish this as the price per person or household is generally based on their use of the service.

However, another important objective for user fees (or charges) for solid waste services is that they can be used as an effective tool to change consumer behaviour, by efficiently allocating or conserving resources. Economic theory indicates that households will consume every item (including garbage disposal services) up to the point at which the marginal benefit is reduced to an extent that it hits the going market price line. If users/households are not charged for a service on a per-use basis, then the going market price for an additional unit of it is zero. In other words, charging for garbage disposal through property taxes suggests that the marginal cost for disposing of a kilogram of solid waste is zero, which is clearly not the case.

[1] For more on these concepts consult the Discussion Paper, "Using the right instruments to pay for the right services: principles, concepts and ideas on how the City of Saskatoon should deliver and pay for the collection and disposal of solid waste," attached to the June 26, 2017 City Council meeting report on a establishing a Waste Utility.

[2] This has been exhaustively covered in the literature. See, for example, Catherine Althaus and Lindsay M. Tedds, "User Fees in Canada: A Municipal Implementation Guide", Paper presented at the University of Waterloo Tax Symposium, June 19, 2014, David G. Duff, "Benefit Taxes and User Fees in Theory and Practice," in University of Toronto Law Journal, 54:4, (2004) 391-447 and Richard M. Bird and Thomas Tsiopoulous, "User Charges for Public Services: Potentials and Problems in Canadian Tax Journal, 45:1 (1997) 25-86.

[3] FAIRNESS AND SOLID WASTE PRICING.

There is often a misconception about the concept of fairness or equity when it comes to paying for municipal services. Where users of a service can be identified, where the service is rival in its consumption—meaning that if I consume the service at a particular point in time, nobody else can without increasing the marginal cost of the service—and if the user can be excluded from using the service, say for non-compliance, then user charges make sense. If these conditions are not satisfied, then it makes economic sense to pay for those services through the tax system.

User fees are based on the concept of who benefits, rather than ability to pay. In other words, user fees satisfy the principle of fairness in the sense that those who benefit from a service pay for it. This is often referred to as the "benefits principle", and is a foundation for local public finance, given the nature of the services that it delivers.[3]

The benefits principle stands in contrast to another measure of fairness, called the "ability to pay" principle. The ability to pay principle maintains that taxes (not fees) should be distributed according to some measure of a taxpayer's ability to pay. Its main goal is to satisfy horizontal and vertical equity concerns.

Horizontal equity refers to treating persons in similar situations similarly. Vertical equity refers to treating persons in different situations differently. This model is more appropriate in a federal and provincial context and when dealing with progressive taxation.

Given this distinction, user fees are often criticized as being unfair because they do not satisfy concept of vertical equity. But vertical equity is related to income distribution and not the cost of paying for service for which individuals benefit.

That said, with user fees, all consumers pay for the cost of the good or service regardless of their income, a key measure for ability to pay. Ability to pay is the most frequent argument against user fees, specifically that they are regressive. The literature, however, is not conclusive regarding the regressive nature of user fees.[4]

According to the literature, the evidence suggests three main arguments against regressivity of user fees:[5]

- upper-income households benefit disproportionately from free public services;
- user fees allow low-income consumers to adjust their consumption to lower levels, thereby paying less than they would under a property tax system; and
- any regressive or disproportionate effects can be minimized or even reversed with careful design, revenue uses, and compensation mechanisms.

[3] See for example, Harry Kitchen, "Financing City Services, Part 1: Operating Expenditures," (Calgary: Manning Foundation for Democratic Education) October 10, 2013; obtained from http://manningfoundation.org/Docs/Operating-Expenses.pdf
[4] See Tedds and Althouse at note 2.
[5] See Ibid.

[4] ADDRESSING AFFORDABILITY WITH SOLID WASTE PRICING

Given the analysis in the previous sections, it appears that there are two public policy problems with solid waste pricing. On the one hand, the City is trying to appropriately manage scarce resources, a problem that comes from removing the price incentive mechanism when services are offered free on a per-use basis (an efficiency issue).

On the other hand, the City is trying to ensure that the burden for delivering the service that the community considers necessary is distributed fairly. On this point there should be a tax structure and an income support system that can effectively redistribute income in the desired way. This generally comes from federal and provincial governments since they have access to progressive taxes.[6]

Therefore, the City should not offer fee discounts as it jeopardizes the main objectives of the charging a fee for solid waste services. The practice of discounting user fees is inefficient because the group paying the lower price will not be covering the same share of operating and capital costs as the group paying the higher price.

For those paying a lower percentage of costs, an incentive exists for overuse and overconsumption. This, in turn, often leads to a demand for more services and higher service levels than is economically efficient and, ultimately, more infrastructure investment than would be the case if every user paid the same price for the same service.[7]

The incentive provided by user fees makes a major contribution toward solving the problems of resource waste, while using a variety of related policy instruments will address the equity issue. By using these policies together, there is strong possibility of achieving a “win-win” outcome concerning both efficiency and equity objectives**.**

By addressing affordability, consideration of the incidence of any other tax or taxes that might be reduced at the same time and the incidence of the publicly provided goods and services to which any revenue is devoted. Below are some policy considerations that the City has control over to help address affordability concerns.

4.1 Variable Pricing:

One of the most important advantages of a variable-rate program may be its inherent fairness. When the cost of managing waste is hidden in taxes (or charged at a flat rate,) households who recycle and divert waste subsidize their neighbours' wastefulness. Under variable pricing, residents pay for what they throw away. Thus, those households that generate less waste will be able to reduce their costs.

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[6] For example, see Robin W. Boadway and Harry M. Kitchen, Canadian Tax Policy, 3rd edition, Tax Paper No 103 (Toronto: Canadian Tax Foundation, 1999).

[7] Much of the proceeding discussion is based on Harry Kitchen, “No Seniors’ Special: Financing Municipal Services in Aging Communities,” IRPP Study, (Montreal: Institute for Research on Public Policy, No 51, February 2015) 24

4.2 Removing Costs of Solid Waste from the Municipal Property Tax:

By removing the cost of solid waste services from the property tax base, this will reduce the taxes for residents and businesses. Currently, non-residential property tax payers are paying for solid waste services but do not receive the service. But because the solid waste user fees are not charged on top of the existing property tax funded system, this will help to reduce the overall burden.

4.3 Expand the City's Property Tax Deferral System:

The City currently operates a low income seniors' property tax deferral program. However, this violates horizontal equity concerns because it is offered to a select group of low income homeowners. The City could expand the program to all low income homeowners, which may help them address any potential tax increases to pay for other City services.

Finally, consideration should be given to the federal provincial low income tax credits and transfer systems. For example, recent changes to Saskatchewan's low income tax credits will help to address affordability concerns for low income households. Although the City has no control over this component, they are something to pay attention to.

[5] WASTE GENERATION, HOUSEHOLD INCOME, AGE AND HOUSEHOLD SIZE; IS THERE A STATISICAL RELATIONSHIP?

There has been curiosity about the relationship between incomes, age, household size and the amount of solid waste generation for single family households. In other words, do lower income households generate more waste than middle or high income households or vice versa? Do households with different age characteristics generate more or less waste? Do larger households generate more waste?

To address these issues, the Administration investigated the relationship between these variables and waste generation. In terms of waste generation, the data was obtained from the City of Saskatoon's 2016 Waste Audit. The City of Saskatoon (City) retained 2cg Inc. (2cg) (as a sub-contractor to Dillon Consulting) to conduct waste audits to estimate the composition of wastes destined for landfill and various recyclable streams.

In early 2016, the City selected ten sampling areas, or neighbourhoods, of 10 single family homes in the City for use throughout this project. These neighbourhoods reflect the range of different demographic and socioeconomic households and were selected to facilitate the collection of representative samples. The amount of waste generation was calculated as kg/household/week (or kg/hh/week).

5.1 Waste Generation and Income

Based on the waste generation (i.e., garbage) sample data for single family households by neighbourhood, the Administration then matched household incomes to each of the sample neighbourhoods, using the most recent income data. Income was obtained from the 2011 National Household Survey (NHS). We use median household incomes (meaning the point at which half of the incomes are higher and half of the incomes are lower) for each neighbourhood.

The Administration then conducted an analysis to determine if there is any correlation between the two variables. To be statistically significant, the correlation coefficient needed to be above 0.49 for total income and 0.44 for after tax income. For total income, the results yielded a correlation coefficient of 0.25. For after tax income, the results yielded a correlation coefficient of 0.28. These weak relationships are illustrated in charts 5.1 and 5.2 in Appendix 1. The non-linear relationship between the variables indicates no correlation.

Given this analysis, we can therefore say that there is no statistically significant correlation between median household incomes and the amount of waste generated by households in the sample neighbourhoods.

5.2 Waste Generation and Age Cohorts

The Administration conducted a similar analysis with respect to various age cohorts. Again we matched the age cohorts to each sample neighbourhood, using the Saskatchewan Health's Population Estimates for 2016. This data source was chosen simply because the population is grouped by age cohorts and neighbourhood.

To conduct the analysis, we determine the age of the population of the sample neighbourhood by using cohorts. The cohorts are grouped as follows: (1) 0-5 years; (2) 6-17 years; (3) 18-64 years; and (4) 65 years and over. We then determine the percentage of each cohort relative to the age of the population. Naturally, the largest cohort is the 18-64 years.

That said, we are interested in determining the age distribution of each neighbourhood to see if there is some statistically significant relationship between various age cohorts and waste generation in the neighbourhood. In other words, do neighbourhoods that have a higher percentage of the population aged 6-17 years tend to generate more waste (or garbage)?

The analysis reveals that there is no statistically significant correlation between the amount of waste generated and various age groups in the sample neighbourhood. These results are illustrated in charts 5.3 through 5.6 in Appendix 1.

5.3 Waste Generation and Household Size

Finally, the Administration conducted a similar analysis on the relationship between waste generation and average household size by single family household in the sample neighbourhoods. To conduct this analysis, the Administration matched the average single family household size for each of the sample neighbourhoods, using data obtained from the NHS. The purpose is to determine whether or not neighbourhoods that have larger households generate more waste.

The analysis reveals that there is no statistically significant correlation between the amount of waste generated in a neighbourhood and the average size of the household. In fact, the relationship is flat, as illustrated in chart 5.7 in Appendix 1.

APPENDIX 1

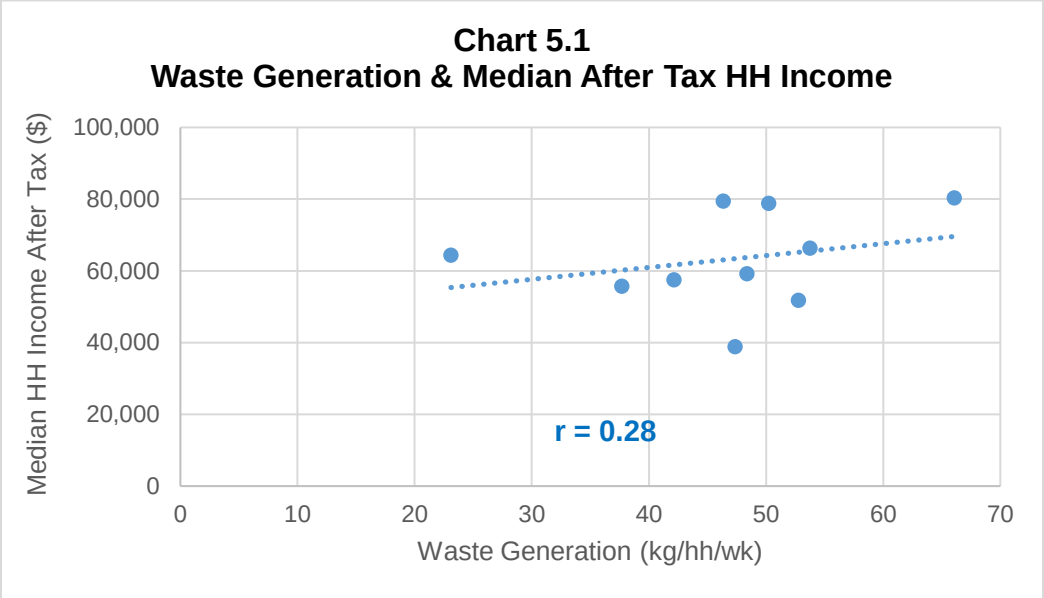


Chart 5.1
Waste Generation & Median After Tax HH Income
Median HH Income After Tax ($)
100,000
80,000
60,000
40,000
20,000
0
0
10
20
30
40
50
60
70
Waste Generation (kg/hh/wk)
r = 0.28

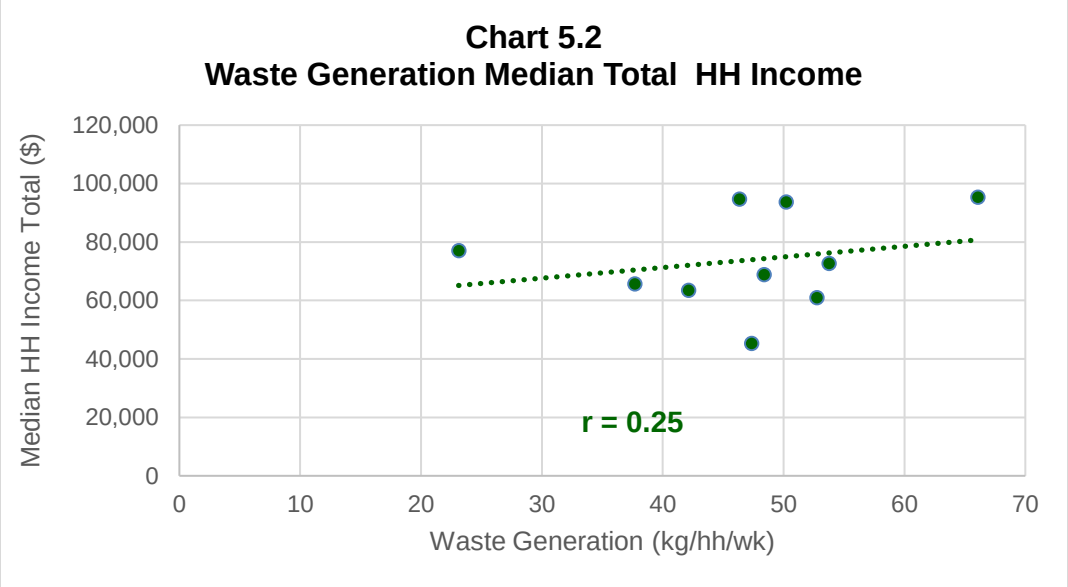


Chart 5.2
Waste Generation Median Total HH Income
Median HH Income Total ($)
120,000
100,000
80,000
60,000
40,000
20,000
0
0
10
20
30
40
50
60
70
Waste Generation (kg/hh/wk)
r = 0.25

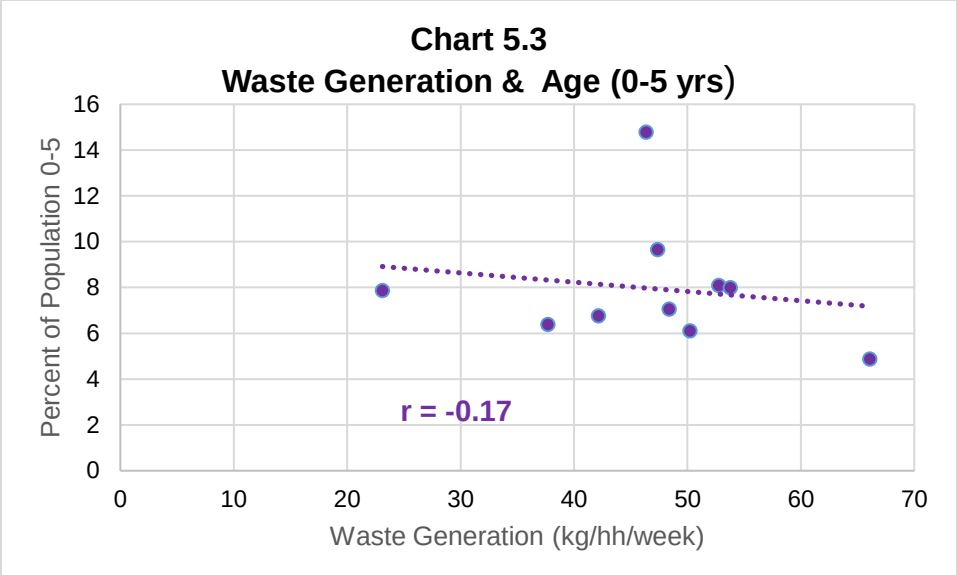


Chart 5.3
Waste Generation & Age (0-5 yrs)
Percent of Population 0-5
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
Waste Generation (kg/hh/week)
r = -0.17

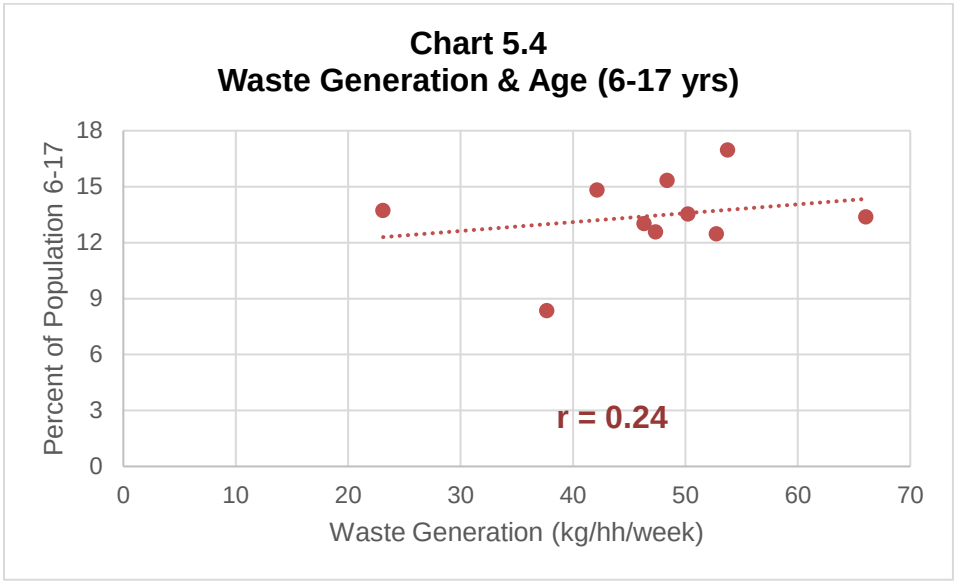


Chart 5.4
Waste Generation & Age (6-17 yrs)
Percent of Population 6-17
18
15
12
9
6
3
0
0
10
20
30
40
50
60
70
Waste Generation (kg/hh/week)
r = 0.24

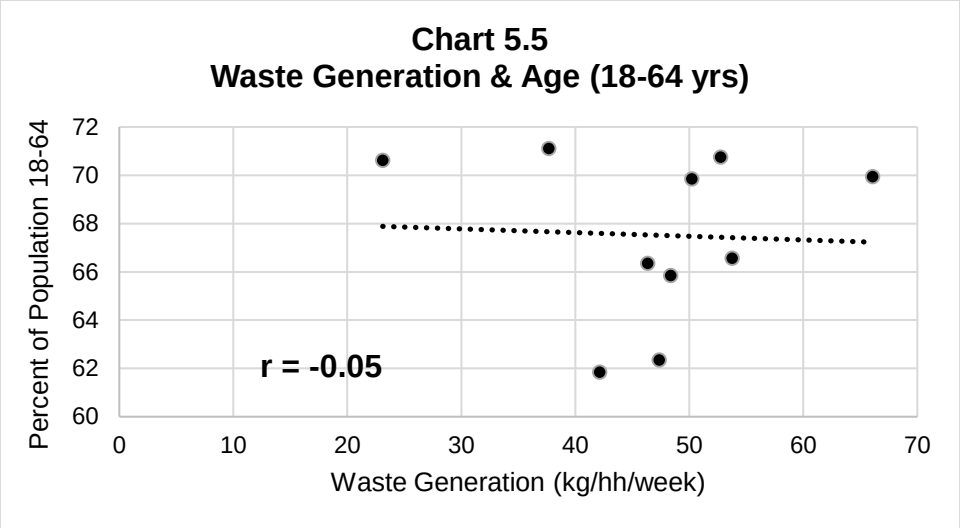


Chart 5.5
Waste Generation & Age (18-64 yrs)
Percent of Population 18-64
72
70
68
66
64
62
60
r = -0.05
0
10
20
30
40
50
60
70
Waste Generation (kg/hh/week)

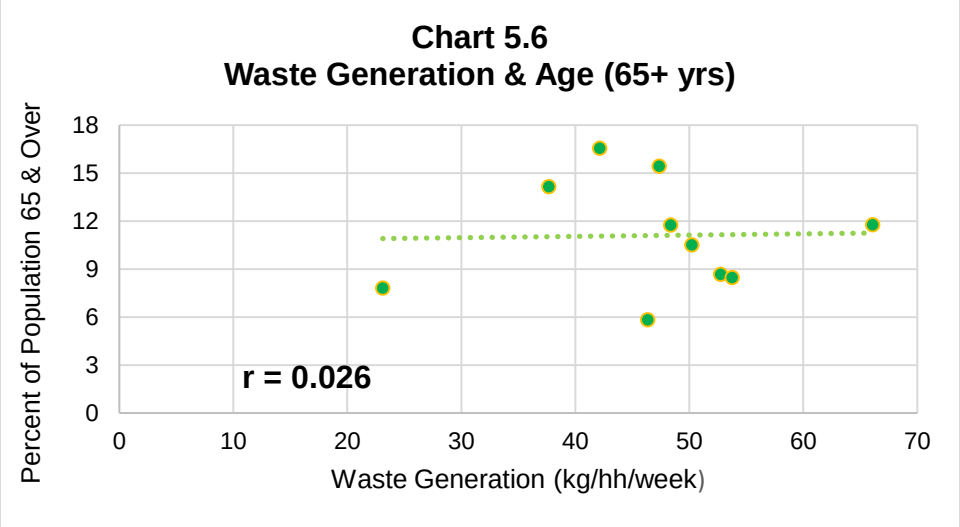


Chart 5.6
Waste Generation & Age (65+ yrs)
Percent of Population 65 & Over
18
15
12
9
6
3
0
r = 0.026
0
10
20
30
40
50
60
70
Waste Generation (kg/hh/week)

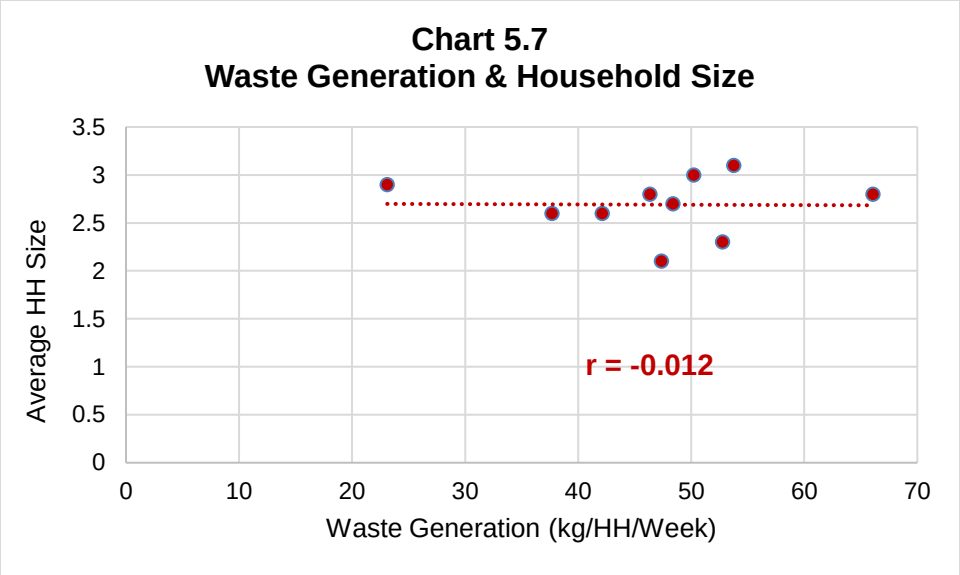


Chart 5.7
Waste Generation & Household Size
Average HH Size
3.5
3
2.5
2
1.5
1
0.5
0
0
10
20
30
40
50
60
70
Waste Generation (kg/HH/Week)
r = -0.012

Options to the Recommendation

OPTION 1 – Flat Rate Utility Fee

Charge a flat fee starting January 2018 with no variable pricing options, moving the current $8.9 million off the mill rate resulting in a reduction to property taxes. Administration will report back on the actual utility charge at budget as the rate depends entirely on the level of service (i.e. biweekly vs weekly) which will be determined later this year; however, rates will include a funding reconciliation as shown in the report Attachment 4.

These rates are estimates only and may change slightly once all implications have been considered. If a flat rate is set, it will represent the amount that would be charged as a utility for this level of service; changes to levels of service would impact the rate.

Benefits:

- Removes waste charges off the mill rate and ensures adequate funding for waste management services in 2018.
- Provides a more equitable system (i.e. users pay directly for services)
- Provides monthly reminder to residents of the costs of waste.

Risks:

- A flat fee utility will result in a higher cost to each resident compared to property taxes (due to commercial subsidization and current underfunding) with none of the benefits of a variable rate such as user control of their costs or incentivised waste diversion.
- The public has not been fully engaged on moving to a utility which could result in dissatisfied and disengaged residents which may have further implications for future waste diversion initiatives.
- Initial user feedback from a recent survey being completed by Insightrix indicates that 50% of residents strongly or somewhat oppose waste being charged as a utility but that 53% of residents strongly or somewhat support variable rates; more details are available in the report Attachment 7.
- If an organics collection program is implemented in the future, removing the ability to include organics in an initial utility fee and increasing the likelihood it will be seen as an additional charge.
- The timeline for implementing a utility charge is very limited, and may not be streamlined between departments or have full capabilities. This will add additional administration, and negatively affect customer service for users.

Financial Implications of Option 1

Estimated Utility Charges

If approved to proceed with a waste utility charge in 2018, the Administration will develop a rate schedule to be presented at the 2018 Business Plan and Budget deliberations. Preliminary work to understand potential rates and considerations has been done and is included in the report Attachment 4.

The waste services utility charge would not include recycling utility charges or the optional Green Cart subscription rate, although these fees can be rolled together in the future.

Implementation costs include a one-time cost of $100,000 for billing and software development, approximately $200,000 per year in additional staffing costs to administer the utility (billing, coordination, and customer service), and $250,000 per year in communications and education costs.

OPTION 2 – Hybrid

This option would involve a portion of waste services being funded through the mill rate, and a portion through a utility charge.

For example, a waste management fee of $5/month could start being charged on monthly utility bills. The fee would contribute to the current funding gaps and allow some portion of waste management services to be removed from the mill rate, other services would continue to be funded from the mill rate. This approach has been implemented in Winnipeg to ensure stable ongoing funding as they potentially transition to a utility.

Another example of a hybrid approach is to phase-in the utility charge, funding all services through property taxes for the first half (or longer) of 2018 and charging a full flat utility fee in the latter part of the year. A phased-in approach could help ease the transition between current and future residential contributions to waste services but would require partial funding from the mill rate.

Benefits:

- Removes a portion of waste charges off the mill rate and ensures waste services are sustainably funded.
- Transitions toward a more equitable system (i.e. users pay directly for services).
- Allows residents to get used to the idea of a utility fee at a lower cost, and should leave time for adequate engagement before transitioning to a full utility model.

Risks:

- Increased administration to administer both property tax funding and utility funding.
- Could result in the perception that residents are paying twice for the same waste services.
- Does not have the benefits associated with variable rate pricing (waste diversion and user control of costs), but allows for transition to them.

Financial Implications of Option 2

Due to the variety of scenarios associated with this option, an estimated rate has not been provided. Similar implementation and Administration costs will be required. If directed to proceed, a rate and other costs will be brought forward to the 2018 Business Plan and Budget deliberations.

Waste Utility Survey Results

The preliminary results from a recent random-sample survey that included questions about a potential waste utility are shown below. The survey is being conducted by Insightrix Research and includes a total of 1000 households (50% phone responses and 50% online). Phone results are still being collected and may result in a slight change (1-2%) in the overall result.

Question: Presently, garbage collection is funded through property taxes. Would you support or oppose having this cost charged on your utility bill, similar to how the cost for recycling is charged now?

Total	Phone	Online Panel	Average
Strongly Support	14%	8%	11%
Somewhat Support	24%	22%	23%
Somewhat Oppose	12%	17%	15%
Strongly Oppose	35%	35%	35%
Not Sure	16%	17%	17%

Question: Presently, all residents who live in houses (attached or detached) have the same sized black cart for garbage and pay the same amount for garbage collection as part of their property taxes. Broadly speaking, would you support or oppose a system where the cost to the resident is based on the amount of garbage they place in their black cart?

Total	Phone	Online Panel	Average
Strongly Support	30%	22%	26%
Somewhat Support	25%	29%	27%
Somewhat Oppose	10%	16%	13%
Strongly Oppose	30%	26%	28%
Not Sure	5%	8%	7%

7830-1

From: City Council
Sent: Friday, August 04, 2017 9:50 PM
To: City Council
Subject: Form submission from: Write a Letter to Council

Submitted on Friday, August 4, 2017 - 21:49
Submitted by anonymous user: 142.165.85.31
Submitted values are:

Date: Friday, August 04, 2017
To: His Worship the Mayor and Members of City Council
First Name: David
Last Name: McGrane
Address: 554 David Knight Way
City: Saskatoon
Province: Saskatchewan
Postal Code: S7K5M4
Email: david.mcgrane@usask.ca
Comments: As a member of the Saskatoon Environmental Advisory Committee (SEAC), I am requesting to speak to the Standing Policy Committee on Environment, Utilities and Corporate Services meeting on August 15, 2017. I would to like to speak to Agenda item 7.5- Summary of Saskatoon Waste Composition and Details on Industrial, Commercial and Institutional (ICI) Waste. Thank you!

The results of this submission may be viewed at:
https://www.saskatoon.ca/node/398/submission/187948

Water Utility Levels of Service

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City council:

That the information be received and that the current levels of service be maintained.

Topic and Purpose

The purpose of this report is to provide the current levels of service supplied by the water utility to the City of Saskatoon. Established levels of service allow the administration to focus on value added work and set clear business objectives. This report also provides options for City Council to review should they choose to adjust specific levels of service.

Report Highlights

1. The water utility provides high quality and reliable service. The current water utility delivers services that are higher than the regulated standards and industry best practice.
2. The current level of service provides a balance between service and cost. Administration investigated reductions in service levels to save costs and found that these reductions did not show significant savings for the possible reductions in service.

Strategic Goals

This report supports the Strategic Goal of Continuous Improvement by providing more efficient ways of conducting business and ensuring an integrated approach to stakeholder communications.

This report also supports the Strategic Goal of Asset and Financial Sustainability as defining levels of service is the first step in implementing an asset management strategy.

Background

On May 15, 2017, the 2018 Budget Indicative Rate report was brought forward to the Governance and Priorities Committee. In that report, Administration reported that leading up to the 2018 Business Plan and Budget deliberations, a series of service level reports would be provided with options to increase or decrease service levels. Due to the desire to reduce the potential property tax increase in 2018, only cost saving changes to levels of service are provided in this level of service report.

Report

High Quality and Reliable Water Utility Service

The water utility is consistently ranked as one of the highest services in the Citizen Satisfaction Survey. The City of Saskatoon is home to the largest Water Treatment Plant and one of the highest level of certified treatment plants in Saskatchewan. The City continues to meet and exceed the standards set out in the Permit to Operate from the Water Security Agency (Provincial Regulator). The water utility is responsive to outages in service such as water main breaks, and continues to invest in preventative maintenance including strategic replacement and lining of water mains.

The Water Treatment Plant provides the highest inactivation of o-cysts in the province (eg. Cryptosporidium and Giardia), as well as the maximum viral disinfection possible. The water pressure and flow meets the needs of businesses, residents and the Saskatoon Fire Department exceeding the American Water Works Association recommended standards. Water quality is closely monitored by the Water Lab, which is a member of the Canadian Association for Laboratory Accreditation (CALA).

Current Level of Service Balances Service and Cost

The Administration evaluated three options for ways the service level could be adjusted and the cost impact of each option. These costs and changes in service levels were estimates and further research on costs would be required before implementation. The options explored were:

1. Introduction of mandatory odd and even watering in the summer months. This action would reduce the peak day demand on the Water Treatment Plant and allow more growth before additional capacity would be required at the Water Treatment Plant. This option saves funds by delaying capital expansion; however, lost revenue and enforcement would cost the City.
    - The net benefit was estimated to be $18,000 annually.
2. Extending repair times on water main breaks from 48 hours to 72 hours. This action would result in a longer wait for resident's water mains to be repaired and would reduce the reliance on emergency contractor work.
    - The change in timeframe is estimated to reduce the reliance on contractors approximately 12 times per year saving the City $36,000.
    - Going from 48 hours to 24 hours would require 24-hour crew coverage for an estimated annual cost of $1.3 million (16 FTEs).
3. Increase the number of allowable breaks in water mains from six to nine over a 25-year period. This level of service change saves capital funding on replacements of water mains.
    - When operating costs of more water main breaks and the long-term replacement costs were factored into this option, it was calculated that this reduced level of service would increase the cost of service by $525,000 annually.

Based on the low financial value that each of these significant reductions in service level provide, the Administration determined that the current level of service, in these areas,

provide good value to customers for the costs. As a result of the value of the current level of service, no changes are being recommended.

Options to the Recommendation

City Council could direct the Administration to further explore any of the optional level of service changes above or others they desire to be investigated.

Communication Plan

If City Council desires to explore the alternative levels of service, a communication plan will be developed for each.

Policy Implications

There are no policy implications for the recommendation; however, selecting a required odd and even watering schedule to reduce peak day demands would require a change to current policy regarding water use.

Financial Implications

There are no financial implications for the recommendation of keeping the current levels of service. Selecting an option to change the level of service would require more detailed financial assessments on the impact of budgets and water rates.

Other Considerations/Implications

There are no public and/or stakeholder involvement, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The customer levels of service will be reviewed annually based on citizen feedback from the Citizen Satisfaction Survey. Recommended changes to the level of service will be reported to City Council for approval.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachment

1. Service Level for Water Utility

Report Approval

Written by:	Russ Munro, Director of Water & Waste Stream
Reviewed by:	Reid Corbett, Director of Saskatoon Water
Approved by:	Angela Gardiner, Acting General Manager of Transportation & Utilities

EUCS RM – Water Utility Levels of Service.docx

Service Level for Water Utility

Scope

Service Level (SL) documents are prepared to allow customers of the City of Saskatoon (City) to review and understand the services *currently* provided. This document includes activities completed under the Water Utility service line. This service is completed by various divisions in the City.

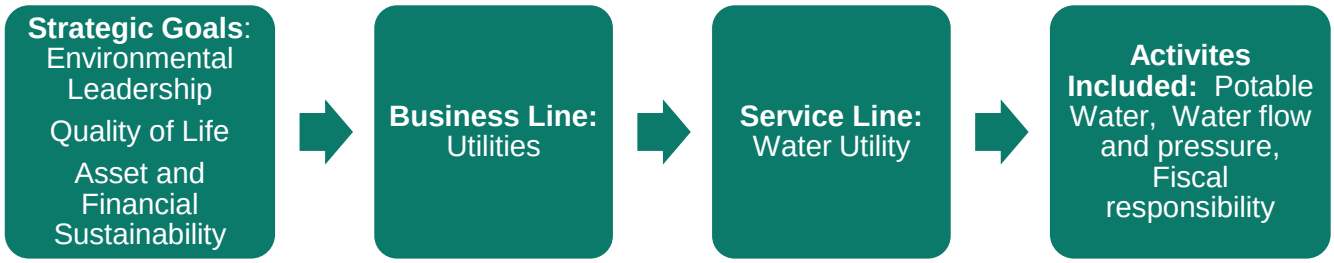
Service Overview *what we do*

Saskatoon has one of the safest water supplies in North America. The Water Utility takes pride in the quality of the water supplied, and are committed to ensuring all precautions are taken to keep citizens safe when work or construction is occurring on the water supply system.

Raw Water is taken directly from the South Saskatchewan River through the raw water intake facility located upstream of the Water Treatment Plant. The water is screened, treated, (softened and flocculated), settled, filtered, disinfected and distributed to almost 300,000 Saskatchewan residents via a network of water mains and three potable water storage reservoirs with capacity of 114 million litres. The stored water allows the Water Treatment Plant to be more efficient by running at a constant rate. The City's water treatment and distribution systems are regulated by a "Permit to Operate a Waterworks" issued by the Water Security Agency. Drinking water quality is further regulated by Health Canada's *Guidelines for Canadian Drinking Water Quality* and Saskatchewan Environment's *The Water Regulations, 2002*, *The Environmental Management and Protection Act, 2010 (EMPA)* and *The Waterworks and Sewage Works Regulations*. Saskatoon Water operates the Water Treatment Plant and reservoirs. The Water and Waste streams division (Water and Sewer section) operates the distribution system from the treatment plant and reservoirs to homes and businesses. Water quality is monitored 24 hours a day, 365 days a year which is in part why Saskatoon's Water has consistently received the highest Saskatoon citizen satisfaction rating of all civic services.

Purpose: *why we do it*

Water Utility services are provided to give residents and businesses a clean and safe water supply and is deemed one of the top priorities of the citizens of Saskatoon. Treated drinking water is one of the largest contributors to human health increases in Saskatoon.



Programs within Service Line	Service Attributes or Values	Service Level Outcomes	Customer Performance Measures
Provide Potable Water for Consumption.	Safe, Quality of Life, Aesthetic	From the treatment of source water at the Water Treatment Plant to its distribution to homes and businesses, the objective of the City of Saskatoon is to ensure high quality of water is distributed. Water is cool odourless, safe to drink and aesthetically pleasing. Our various treatment and monitoring activities ensure The City of Saskatoon exceeds regulatory standards and expectations set out in their Permit to Operate issued by the Water Security Agency (WSA). The Lead Water pipes in the system will be replaced to meet immediate priorities for clean water and a healthier City of Saskatoon.	Saskatoon currently meets or exceeds provincial and federal water standards. A copy of the standards can be found on Saskatchewan Water Security Agency's website using this link. All remaining lead service lines in water distribution system will be replaced by 2026. Any disruption in the system will result in a Drinking Water Advisory (DWA) and lab testing before the advisory can be lifted. 80% of water quality enquiries are addressed over the phone. The water lab will work with the customer to establish the cause of the issue and provide awareness on ways to prevent reoccurrence. If an enquiry is not resolved over the phone, a home visit will be arranged to test the water within 48hours. A sample is collected and tested within 48 hours to ensure water is safe for consumption.

Provide Water to Saskatoon Fire Department for fire Suppression Purposes.	Reliable, Responsible	The pressure in the Water Distribution System is operated to maintain adequate pressure in the system for fire suppression purposes. Water Hydrants are inspected to ensure they are operating at capacity, highly visible and accessible in the case of an emergency.	The minimum water pressure recommended by the American Water Works Association (AWWA) is maintained when the hydrants are in operation. We currently inspect 80% to 100% of over 7,100 Hydrants in the system on an annual basis. Our annual goal is to ensure: • 100% Hydrant inspection occurs in the winter season. • 50% Hydrant inspection occurs in the summer season.
Provide sufficient pressure and flow for residential and commercial use.	Reliable, Responsible	Saskatoon's home and business water demands will be met at a sustained normal operating pressure. The provision of high and reliable water pressure at all parts in the Water Distribution System is generally achieved by meeting Fire Flow requirements for those areas. Sufficient water pressure is used to clean the sewer lines across the city.	Adequate water pressure and flow for home and business use is maintained in periods of peak demand. Following an interruption in service that can affect water flow and pressure: • A Drinking Water Advisory will be provided to all homes and businesses affected. • Alternate water supply is provided to those affected within 8 hours if the issue remains unresolved. • Water will be restored in 1-2 days except for extenuating cases.
Protect the Environment	Environmental Stewardship	Proactively protect and preserve the City's primary source of raw water. The South Saskatchewan River and its surrounding watershed (drainage area) is protected to ensure Saskatoon's water	Water conservation initiatives will be made available to engage the public through communications on the website, YouTube Videos,

		supply is sustainable and impact to the environment is reduced. The City of Saskatoon is a partner in the South Saskatchewan River Watershed Stewards Inc. This organization works within the watershed to implement programs and initiatives that will protect the water resource.	conservation education and water week awareness. Systems are operated, inspected and maintained so that no Permit to Operate violations occur.
Fiscal Responsibility	Asset preservation, Reliable, Responsive	Provide cost effective asset maintenance solution, including preventative maintenance programs. The asset preservation efforts are geared towards risk mitigation, longevity of the water system including: Water Treatment Plant, Water Mains, Valves, and Hydrants. Saskatoon's water rates are designed to encourage conservation which defers the need for high capital intensive capacity projects. Rates are appropriate based on long term financial plan.	With current approved funding levels for water main replacement, the number of water mains in poor condition is getting smaller over time. Based upon the observed life cycle of water mains in Saskatoon, a water main is considered in poor condition when it meets certain criteria; • It has had 6 or more breaks in the last 25 years • It does not meet current capacity standards. Water main replacement is prioritized based on capacity (volume of water), the number of people serviced and the number of historic breaks (last 25 years), the number of recent breaks (last 5 years), as well as optimizing the use of our resources by working with Roadways and Operations and other service areas.

Resource Allocation: *what does it cost*

Service Line	Number of Services	2016 Budgeted Cost	2016 Actual Cost	Variance
Water Utility	5	$68,917,600.00	$67,091,893.64	$1,825,706.36

Service Line	Number of Services	2016 Actual Revenue	2016 Actual Cost	Variance
Water Utility	5	$70,504,000.00	$67,091,893.64	$3,412,106.36 The positive balance is transferred to the stabilization and capital reserve.

Some of the cost to provide these service levels broken down by activity in the previous year are:

Service Activity	Total Cubic Meters of Water Produced in 2016	Budgeted Cost per activity	Actual Cost per Activity	Variance
Water treatment, pumping and Storage	44.1 million cubic meters in 2016	$0.34	$0.30	$0.04
Water Distribution to homes and businesses ***(includes metering services)***	44.1 million cubic meters in 2016	$0.37	$0.36	$0.01

Financial Assumption

- In 2016, the Water Utility Service Line paid a Return on Investment of $1,740,000 which was transferred to the City of Saskatoon's general fund as well as $5,291,000 grant in lieu of taxes.
- Unit costs include a prorated portion of Water Administration, General and Corporate Service charges.

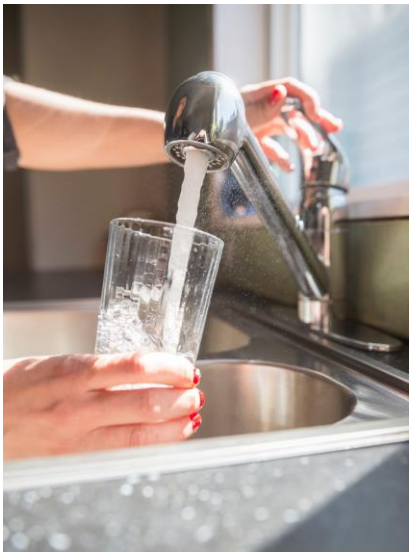
Supporting Information

- The revenue from the water utility funds the Infrastructure Services Capital Reserve for water distribution and wastewater collection system rehabilitation and replacement projects needed to address aging infrastructure. In 2013, a Redevelopment Levy was added to the Infrastructure Levy, with a four-year phase-in period to generate $4.0 million annually by 2016. In 2014, a Roadway Levy was added to the Infrastructure Levy with a three-year phase-in period to generate $6.0 million annually by 2016.

Constraints

- Increased demand on infrastructure entered into a “replacement era” where asset sustainability and reliability will be at risk if not properly managed. Some of the infrastructure is over 100 years old and does not meet design standards for new development areas. Monitoring and assessing the physical condition and capacity of the infrastructure has been initiated as a foundation for an asset management program to better maintain our assets, prolong life, and increase resiliency.
- Cumulative impacts of infill development are placing higher demands on the carrying capacity of existing water and sewer infrastructure. More infill reduces greenspace and increases surface runoff so appropriate policies are needed to minimize surface flooding.

Supporting References:



Optional Service Levels:

The table below provides service level options and associated costs should there be a need or desire to adjust the service level.

No.	Service Level Option	Description of Change in Service Level Outcome	Estimated Annual Cost 2016	Annual Budget Allocation 2016	Overall Funding Result
1	Introduce 'Peak Shaving' initiative (odd/even watering of lawns).	Represents the offset to Operating expenditures which in turn will impact rate structure.	$68,899,600	$68,917,600	Savings of $18,000 annually.
2	Change guidelines for water main replacement from 6 breaks in 25 years to 9 breaks in 25 years. The average number of breaks in a year would increase from 240 to 275.	Annual capital funding for replacement would reduce in the short-term. Over the long-term, replacement costs would increase due to a built-up backlog of failed water mains requiring replacement. Short-term and long-term maintenance costs would increase due to increased water main breaks.	$69,442,600	$68,917,600	Shortfall of $525,000 annually.
3	Change Watermain break response time from 48 hours to 72 hours.	Reduced reliance on contractor repairs will result in an estimated reduction in contractor calls to 12 calls per year at $3,000 per repair.	$68,881,600	$68,917,600	Savings of $36,000 annually.

Storm Water Utility Business Plan

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Storm Water Utility focus resources on maintenance and preservation of existing storm water assets;
2. That $3 million be maintained in the Storm Water Utility's capital reserve to protect strategic public infrastructure from damage caused by riverbank slumping and other emergency storm water repairs;
3. That the Equivalent Runoff Unit used for Storm Water Management charges be increased by $13.50 annually from 2019 to 2022, and utilized for projects to maintain and preserve storm water infrastructure; and
4. That the temporary Flood Protection Program be extended and phased out by $13.50 annually from 2019 to 2022.

Topic and Purpose
The purpose of this report is to present the Storm Water Utility Business Plan and funding priorities for approval.

Report Highlights

1. Inspections of existing infrastructure in 2016 identified significant maintenance, preservation, and drainage challenges for the Storm Water Utility's $6.2 million annual budget that will require investments to prevent higher future costs.
2. The estimated $18.9 million cost to expand storm water infrastructure capacity in three modelled flood risk areas would enhance quality of life for citizens in these areas, but is high relative to the estimated value of flood damage.
3. Riverbank slope failures triggered by high groundwater levels are unpredictable and require a funding source that allows for timely remediation to protect strategic public infrastructure.
4. Extending and phasing out the Flood Protection Plan (FPP) by January 2022, while increasing the Storm Water Utility charge by a similar amount, will maintain charges paid by residential customers, simplify the Utility Bill, and enhance the user-pay principle.

Strategic Goals
This report supports the Strategic Goal of Asset and Financial Sustainability as it aims to use resources efficiently through maintaining and preserving storm water assets at the lowest life cycle cost. The report proposes an increase to the storm water management charge to provide sustainable funding for the utility.

This report supports the Strategic Goal of Continuous Improvement through several actions that will improve storm water management and reduce the risk of property flooding.

This report supports the Strategic Goal of Quality of Life through actions to increase safety and contribute to public recreation through riverbank slope management and appropriate use of storm water ponds.

This report also supports the Strategic Goal of Environmental Leadership through actions to protect the water quality of the watershed from pollutants entering through the storm water infrastructure.

Background

Flooding occurs in areas throughout Saskatoon during intense storm events, and is influenced by a combination of many factors such as amount of rainfall, intensity, duration, soil saturation due to previous rainfall or snowmelt, topography, area of the drainage basin, vegetation, hard-surface, storm water infrastructure, etc. In 2014, 30 known flood sites were modelled and prioritized for flood risk based on set criteria (i.e. risk of water reaching within three meters of buildings, number of properties impacted, and roadway classification). Various remediation options to reduce flood risk were assessed for three modelled areas:

1. Ruth Street/Cairns Avenue
2. First Street/Dufferin Avenue
3. Cascade Street/Dufferin Avenue

The cost of the preferred option is estimated to be $18.9 million (2017 dollars).

At its meeting held on April 25, 2016, during consideration of the Surface Flooding Control Strategy for the Storm Water Utility report, City Council resolved:

> "1. That the Administration develop a comprehensive Storm Water Utility Business Plan, including a longer-term capital and funding plan for storm water infrastructure, that considers the factors outlined in the report of the General Manager, Transportation & Utilities Department dated April 11, 2016;
> 2. That the Administration explore:
>   a) alternative funding sources for Riverbank stabilization
>   b) the possibility of redirecting the temporary flood protection levy and report back about both items;
> 3. That the Administration concurrently meet with affected residents to provide an update and further discuss the options in the report of the General Manager, Transportation & Utilities Department, dated April 11, 2016, as well as possible interim/short-term solutions; and
> 4. That the City consider offering the same solution for the affected property owners experiencing flooding in top 3 priority areas as we are currently offering for St. Mary's Church."

Report

Business Plan

The Storm Water Business Plan (Attachment 1) identifies priorities and strategies for storm water management. Highlights include the following:

- Assessing the current condition of storm water assets, and developing a plan for maintaining and preserving existing storm water infrastructure to prevent higher future costs.
- Addressing unique ongoing drainage challenges throughout the Montgomery neighbourhood.
- Reducing risks and issues caused by sump pumps and cross connections with the sanitary sewer system.
- Updating and enforcing drainage bylaws.
- Incorporating the impacts of climate change, higher densities, and increased hard surface ratios in new storm water design standards.
- Monitoring groundwater and riverbank slope stability and developing a Slope Stability Management Framework.
- Implementing a communication plan to increase awareness of measures for increasing flood resiliency.

Storm Water Infrastructure Expansion

The following highlights financial costs of flood damage and expected costs to expand the storm water infrastructure to reduce, but not eliminate, flood risk in the three modelled areas that have experienced flooding during intense storms:

- Between 2005 and 2016, an estimated 256 claims, valued at $1.4 million (annual average of $140,000), for surface flooding in Saskatoon were paid by the Provincial Disaster Assistance Program (PDAP).
- Detailed data from 2010 to 2016 indicates 208 properties in 175 postal code areas throughout Saskatoon had claims valued at approximately $1.2 million for surface flooding, with 95% of those claims being made in 2010. (All numbers inflated to 2017 dollars at 2.5% annual inflation.) Seven of the 208 claims were from the three modelled risk areas noted above (3.4% of surface flood claims).
- Total surface flood damage in the three modelled risk areas over the last ten years is estimated to be $64,000 (average of $6,400 per year).
- The estimated cost to reduce the risk of flooding for 130 properties in the three modelled areas is $18.9 million for a “1-in-10 year” flood event ($145,000 per property protected). Low areas in these neighbourhoods could still experience overland flooding during larger storm events.
- Of the three modelled areas, First Street/Dufferin Avenue is the most favourable for network capacity expansion because it has the following:
    - The most surface flood damage claims (five claims valued at $41,000 in total)
    - The lowest expected capital cost ($3.8 million) because a nearby park could potentially be converted to incorporate a dry pond.
    - A below average cost per property protected of $106,000, based on 36 modelled properties protected from water reaching within three metres of houses during a “1-in-10 year” storm event. (A “1-in-10 year” storm has a 10% chance of occurring in any given year.)

Riverbank Stabilization

Since 2012, the Storm Water Utility has funded an average of $1.2 million annually for riverbank stabilization, including rehabilitating Saskatchewan Crescent and the Meewasin Trail, and monitoring the 11th Street slope. Riverbank slumping is unpredictable and can occur quickly. Remediation costs for the infrastructure at 16th Street and 17th Street was approximately $3 million per site. The report recommends that a reserve of $3 million be maintained to fund emergency repairs of strategic public infrastructure impacted by high groundwater and storm water.

Proposed Funding Strategy

The report recommends that the temporary FPP monthly levy be extended and phased out over four years, with a corresponding increase to the ERU phased in. In response to intense floods in 2005 that caused sewer back-ups, the FPP was established to fund programs to prevent similar future flooding (e.g. electronic flow monitors, backflow valves, and supertanks in at-risk neighbourhoods). The FPP is currently applied at $4.50 per month to all water meters, with commercial and residential customers paying the same rate. The FPP is scheduled to end December 31, 2018.

The ERU is a unit of measure used by many municipalities for storm water management charges. A single family residential dwelling is deemed to produce one ERU of storm water, which is currently charged at $4.40 monthly ($52.80 annually). Commercial properties pay a minimum of two ERUs, with a phase-in up to a maximum of 100 ERUs ($5,280 annually), depending on their size and surface imperviousness, by 2018.

Advantages to the proposed approach include the following:

- Total residential Utility Bills for storm water and flood protection remain the same from 2012 to 2022 at $107 annually.
- Residential charges for storm water drainage will continue to be significantly lower than in Regina, Calgary, and Edmonton. Regina's minimum annual 2017 storm drainage charge for a single residential property is $190.
- Utility Bills will be simplified by January 2022 when the FPP is eliminated.
- The user-pay principle for drainage is enhanced as large commercial properties that contribute more runoff pay for a more proportionate share. The share paid by single residential properties for storm water and flood protection will decrease from 66% to 54%.
- The increase for all commercial properties will be phased in over four years to avoid significant increases in a single year. The maximum increase per year will be 26%.
- An expected FPP deficit of $300,000 will be covered and additional funding will be generated to fund projects like superpipes that reduce the risk of sewer back-ups during extreme storm events, or contribute to the backlog in storm water asset maintenance and preservation. Including estimated growth of 1.5% annually, the Storm Water Utility's budget will increase from $6.4 million in 2018 to $13.7 million in 2022. Comparatively, Regina's storm drainage budget was over $14 million in 2015 with no expenses for riverbank stabilization.

Flood Resiliency

Citizens have emphasized the need for clarity about the City's planned investments in capacity expansion so they can make decisions. The Administration met with His Worship the Mayor and citizens on April 27, 2016, to discuss the flood risk at First Street/Dufferin Avenue. Previous meetings with citizens in flood risk areas provided options for residents to reduce flood damage on their property. The Administration also met with St. Mary's Church representatives regarding measures they could take to enhance drainage.

A potential cost-shared funding program for citizens to improve their properties (e.g. measures such as installing window wells, new doors and windows with improved seals, flood fences, re-grading, etc.) was assessed. A review of other Canadian municipalities identified no programs for cost sharing private property improvements to reduce surface flood risk. Other considerations include fairness in defining eligibility to certain areas and administration costs. The City cleaned and inspected the storm water sewers in the top three risk areas in 2016 to ensure they were working at capacity. Options for overland flooding peak attenuation have been assessed.

Options to the Recommendation

1. Approve $3.8 million for storm water capacity expansion to reduce risk of flooding at First Street/Dufferin Avenue, and further assess network capacity expansion costs for two additional risk areas in 2018 (Attachment 2).
2. Fund riverbank slope monitoring, stabilization, and strategic infrastructure remediation through alternative funding (Attachment 3).
3. Maintain status quo funding for the Storm Water Utility.
4. End the FPP in 2018, as currently scheduled, rather than extending and phasing it out. This would reduce total revenues by approximately $6 million over three years.

Public and/or Stakeholder Involvement

Extensive consultations were undertaken in 2014 with residents in the flood risk areas about the impacts of property flooding and options to reduce risks. Local residents' feedback on options to reduce flood risk was considered to determine the preferred solution for further concept development and cost assessment. Citizens emphasized the negative impact to quality of life that the risk of flooding presents even if property damage is not incurred.

Communication Plan

The Storm Water Utility Business Plan includes actions for citizen awareness and engagement regarding public and private responsibilities for storm water drainage. For example, notices will be distributed to citizens in areas where drainage and groundwater issues are more common (e.g. Montgomery Place, Adelaide/Churchill, etc.) to increase awareness of actions that can reduce flood risks and what citizens can expect from the City. Information will also be provided through earned media and with Utility Bills. City staff will be available to meet with citizens, as requested.

Financial Implications

The proposed FPP extension and phase out, and corresponding phased increase to the Storm Water ERU between 2019 and 2022 are expected to generate the following revenues, assuming a 1.5% annual growth rate.

Year	FPP	Storm Water ERUs - Status Quo	ERU Additional Phase In	Total New Charges	Total FPP & ERU
2016 (Actual)	$3,899,055	$6,107,661	0	0	$10,006,716
2017	$3,957,541	$6,209,000	0	0	$10,166,541
2018	$4,016,904	$6,360,000	0	0	$10,376,904
2019	$3,057,868	$6,455,400	$1,654,477	$4,712,345	$11,167,745
2020	$1,996,604	$6,552,231	$3,358,588	$5,355,192	$11,907,423
2021	$1,013,276	$6,650,514	$5,113,451	$6,126,727	$12,777,241
2022	0	$6,750,272	$6,920,203	$6,920,203	$13,670,475

City properties also pay for storm water and will be impacted by the increase in the ERU charges by an estimated $284,000 over four years ($113,500 in 2022).

Other Considerations/Implications

There are no policy, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The Storm Water Management Utility Bylaw will be brought forward in early 2018 for changes to incorporate the new 2019 rates.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Storm Water Utility Business Plan
2. Storm Water Infrastructure Capacity Expansion Option
3. East Riverbank Stabilization Funding Option

Report Approval

Written by: Angela Schmidt, Manager of Storm Water Utility, Saskatoon Water
Reviewed by: AJ McCannell, Engineering & Planning Manager, Saskatoon Water
Reid Corbett, Director of Saskatoon Water
Approved by: Angela Gardiner, Acting General Manager, Transportation & Utilities Department

EUCS AS – Storm Water Utility Business Plan.docx

Attachment 1

Storm Water Utility Business Plan

Saskatoon Water
Transportation & Utilities Department

City of Saskatoon

Contents

EXECUTIVE SUMMARY

Saskatoon's Storm Water Utility funds storm water management and flood protection services, including ongoing operations and maintenance of assets with an estimated replacement value of $3.4 billion. The Utility also has monitored and stabilized the east riverbank to protect strategic public property. The Storm Water Utility has a 2017 total budget of $6.2 million, which includes $3.5 million for system operating and maintenance expenses and a transfer to capital of $2.7 million.

An assessment over the last year has identified storm water challenges and priorities. The business plan focuses future resources on continued assessment, maintenance, and preservation of existing storm water infrastructure rather than capacity expansion. Highlights include the following:

- Assessing the current condition of storm water assets, and then maintaining and preserving existing storm water infrastructure to prevent higher future costs.
- Addressing unique ongoing drainage challenges throughout the Montgomery neighbourhood.
- Reducing risks and issues caused by sump pumps and cross connections with the sanitary sewer system.
- Updating and enforcing drainage bylaws.
- Incorporating the impacts of climate change, higher intensification of developable land, and increased hard surface ratios in storm water design standards for new developments.
- Monitoring groundwater and riverbank slope stability and developing a Slope Stability Management Framework.
- Implementing a communication plan to increase awareness of public and private responsibilities for storm water drainage.

The plan recommends that the Storm Water Utility continue to fund east riverbank monitoring and remediation, including a $3.0 million reserve for emergency slope remediation to protect strategic public infrastructure, such as bridges, Saskatchewan Crescent, and Meewasin Trail.

The plan recommends that the Flood Protection Program (FPP) levy, which is scheduled to end December 2018, be extended and phased out at the end of December, 2021, with an equivalent increase to the Equivalent Runoff Unit (ERU) used for Storm Water Management Charge. Total charges for single-family residential properties for storm water management and flood protection would be the same in 2022 as the annual charges from 2012 to 2018 ($107 annually). The minimum total FPP and ERU paid by multi-residential, industrial, commercial, and institutional properties would increase from $160 in 2018 to $214 in 2022, and the maximum would increase from $5,334 to $10,680.

Advantages to this approach include contributing to closing the gap for asset maintenance and preservation, simplification of Utility Bill charges by January 2022, and enhancement of the user-pay principle. Annual total funding is expected to increase from $10.4 million in 2018 to $13.7 million in 2022.

Year	FPP	Storm Water ERUs - Status Quo	ERU Additional Phase In	Total New Charges	Total FPP & ERU
2016 (Actual)	$3,899,055	$6,107,661	0	0	$10,006,716
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2022	0	$6,750,272	$6,920,203	$6,920,203	$13,670,475

The following business plan outlines the Storm Water Utility's goals and objectives, its operating environment, key actions and responsibilities, and the funding strategy.

1.0 INTRODUCTION

Saskatoon's Storm Water Utility funds storm water management and flood protection services, including ongoing operations and maintenance of assets with an estimated replacement value of $3.4 billion. The Utility also has been tasked with monitoring and stabilizing the east riverbank to protect strategic public property from damages influenced by high groundwater levels. The Storm Water Utility has a 2017 budget of about $3.5 million for operating expenses and a transfer to capital of $2.7 million for a total budget of $6.2 million.

The Storm Water Utility Business Plan provides background on the utility and its challenges. Priorities and shared responsibilities are identified to more effectively utilize resources in managing storm water.

1.1 Background

The Storm Water Utility was established in 2002 with uniform rates for all types of properties, regardless of size or type to fund storm water services. The current "Storm Water Management Charge" rate structure was approved by City Council in August 2011 and implemented in January 2012, with charges for commercial properties reasonably proportional to the storm water generated based on property size and surface imperviousness.

The following divisions provide services funded by the Storm Water Utility.

Saskatoon Water (SW) provides overall storm water management including:

- Monitoring rainfall.
- Assessing runoff factors of multi-residential, commercial, industrial, and institutional facilities.
- Modelling storm system capacity relative to varying levels of rainfall volume and intensity.
- Engineering support for drainage projects.
- Community liaison for storm water issues.

Water & Waste Stream (WWS) provides the ongoing day-to-day operations and maintenance of storm water ponds, outfalls, and below ground storm water drainage and infrastructure.

Roadways and Operations (R&O) maintains above ground drainage including a fall street sweep and culverts.

Major Projects (MP) tracks the infrastructure inventory, completes condition assessment, and oversees the asset preservation program.

Construction & Design (C&D) operates the "Connection Desk" and provides project management services, including survey work and inspection, for storm water infrastructure construction projects.

Community Standards (CS) provides drainage inspections, drainage advice to residents and developers, bylaw updates, and bylaw enforcement.

Environmental & Corporate Initiatives (ECI) provides leadership in activities that contribute to storm water practices that protect our watershed and natural resources.

Communications (Comm) assists in initiatives to enhance citizen awareness and engagement to improve flood resiliency.

Corporate Revenue (CR) provides storm water billing and collection services.

Transportation & Utilities Business Administration (BA) provides accounting and administrative support.

Storm Water staff also support the work of other divisions, such as Planning & Development (P&D) and Building Standards (BSD).

1.2 Strategic Framework

Our Vision
The City of Saskatoon is a world leader in storm water design and asset management. We effectively collaborate with citizens and partners to utilize storm water as a resource and mitigate the risk of flooding.

Our Mission
The Storm Water Utility provides safe, efficient, and cost-effective storm water management to Saskatoon citizens through teamwork and innovation. We develop proactive strategies that ensure the effective long-term performance of our storm water systems, supported by sustainable, accountable, and responsive funding structures. Storm water management charges entrusted by citizens are used as effectively as possible to minimize storm water and snow melt impacts.

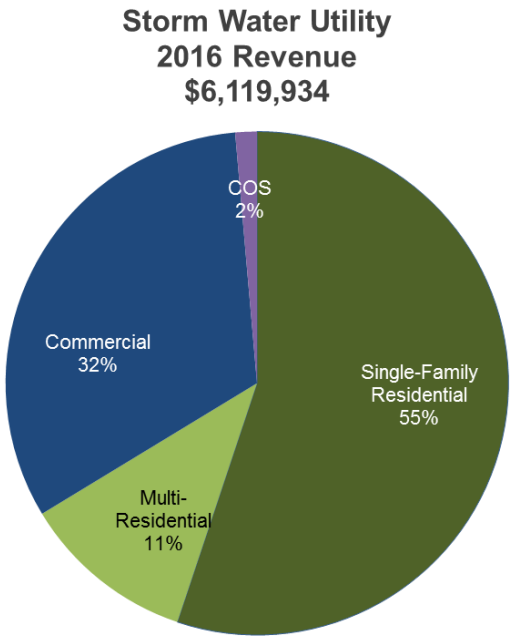
Our Corporate Values
- Trust
- Integrity
- Respect
- Honesty
- Courage

Leadership Commitments
- Reliable and Responsible Service
- Strong Management and Fiscal Responsibility
- Effective Communication, Openness and Accountability
- Innovation and Creativity

1.3 Our Customers

Storm water customers include residential, commercial, industrial, and institutional properties that generate storm water runoff to the City's storm sewer system. In 2016, storm water charges were applied to 63,800 single-residential properties; and 4,100 multi-residential, commercial, industrial, and institutional including City properties. Agriculture-zoned property, roads, right-of-ways, and City-owned parks were exempted from storm water charges.

With the user-pay rate system, commercial, industrial, and institutional properties account for 5% of the number of customers and one third of total revenues. Residential customers, including single and multi-residential, account for 95% of customers and two thirds of revenues.



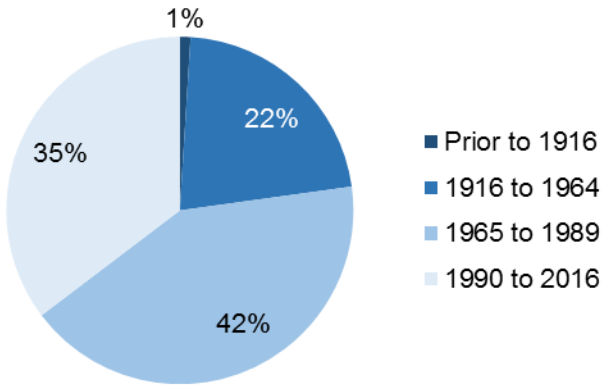
F1.4 Our Infrastructure

The replacement value of Saskatoon's storm water management infrastructure is estimated at over $3.4 billion. The storm water minor and major systems are described below.

The **minor system** consists of piping, manholes, catch basins, and outfall structures that are able to convey runoff from more frequent, lower intensity storm events, up to a "1-in-2-year" storm event. The system includes 734 km of storm sewer pipes, 4 km of force mains, 9,277 manholes, 13,367 catch basins, 2,941 service connections, and 93 outfalls. Two lift stations also support the system.

Asset	2016 Inventory[1]
Storm Water Sewers	734 km
Manholes	9,277
Catch Basins	13,367
Leads	13,207
Service Connections	2,941
Dry Ponds	9
Wet Ponds	25
Culverts	259 (8.2 km)
Water Outfalls	93
Sub-drainage	44 km
Oil & Grit Separators	1
Replacement Value	**$3.4 Billion**

Storm Water Infrastructure by Year Constructed



Approximately 1% of the storm water lines were constructed prior to 1916 and an additional 22% were constructed prior to 1965. About 35% of the storm water infrastructure was constructed since 1990.

The **major system** consists of overland street drainage, nine dry ponds, 25 wet ponds (including three natural ponds and two constructed wetlands), and any other land that is required to convey runoff from less frequent, higher intensity storms that produce runoff in excess of what the minor system typically handles.

72 inch Sewer Pipe in Saskatoon, between 1912 and 1915 (Saskatoon Library, 2016)

[1] Source: ArcMap GIS

New neighbourhoods are designed so that roadways and drainage channels are used to convey runoff from storm events up to “1 in 100-years”.[2] Older neighbourhoods did not have the same design standard; therefore, water from higher intensity storms are more likely to encroach on properties, and in some cases, buildings at low sites in older neighbourhoods.

In addition to retaining runoff from larger rain events and reducing localized flooding, storm ponds also provide the following additional benefits:

- Improving the quality of runoff entering the South Saskatchewan River through removing pollutants and particulates.
- Attenuating the peak flow rate of storm water to reduce flooding.
- Providing natural areas to support biodiversity of plants, birds, and insects.
- Providing recreation opportunities such as non-motorized boating in the summer and skating in the winter.
- Improving quality of life through enhancing the neighbourhood’s aesthetics.

Wildwood Storm Water Pond

Sub-drainage to drain groundwater is installed along the riverbank (1.6 km) and under roadways (44.2 km). Riverbank sub-drainage includes 32 segments, which was mostly installed in the 1950s and 1960s.

[2] The utilization of surface for conveyance of storm water during greater than 1-in-2 year storm events began to be implemented in new neighbourhoods in 1989 after the Stanley Report.

1.5 Goals and Objectives

Asset and Financial Sustainability: Efficient Resource Use

- Conditions of storm water assets are known so effective maintenance and preservation is undertaken.
- Existing storm water infrastructure is protected through a lowest life cycle asset management costing approach.
- Divisions work collaboratively to implement storm water management strategies.
- Partnerships with community groups and expertise leverage City resources to achieve common goals for storm water management.
- Properties are fairly assessed for the storm water runoff they generate to maintain a fully funded user-pay utility.
- Activities funded by the Storm Water Utility are transparent.

Continuous Improvement: Protect Properties from Flooding

- Storm water infrastructure and drainage are maintained at approved levels of service to protect properties and enhance quality of life.
- Investments to expand storm water infrastructure are based on costs and available funding relative to economic and non-quantifiable benefits of reducing flood risk.
- Citizens and developers understand their responsibilities and take actions to use storm water as a resource and protect properties from flooding.
- The sanitary system is protected from storm water cross connections.
- Sump pumps are used effectively to protect properties without negatively impacting other infrastructure.
- Ongoing ponding and drainage issues during spring melt and rain events are minimized.
- Long-term storm water infrastructure planning for a more flood resilient community considers the impacts of climate change and increased urban densities (intensification of land use).

Quality of Life: Safety

- Citizens are protected from safety risks associated with flooded underpasses, intersections and manholes, storm ponds, and riverbank slumping, through awareness and emergency response strategies.

Quality of Life: Recreation

- Opportunities for recreation activities are incorporated with storm water ponds when feasible.
- Access to Meewasin Trails is maintained through riverbank slope management**.**

Environmental Leadership: Protect Water Quality and our Watershed

- Citizens are aware and supportive of preventing pollutants from entering the storm water system and draining to the river.
- Storm water infrastructure planning and design incorporates best management practices for high water quality.
- Appropriate bylaws are enacted and enforced to protect water quality.

- Monitoring and reporting of storm water quality reinforces citizen confidence in the quality of runoff draining to the river.

Moving Around: Roadway and Pathway Drainage

- Roadways and sidewalks drain effectively during spring melt and intense rain events to minimize disruptions to traffic and pedestrians.

Confederation and Laurier Drive Intersection

2.0 ENVIRONMENTAL SCAN

2.1 Seasonal Rainfall

Between 1900 and 2016, Saskatoon received an average seasonal rainfall of 265 mm per year. Seasonal rainfall has ranged from a low of 139 mm in 1941 to a high of 569 mm in 2010. The third and fourth highest annual seasonal recorded rainfalls occurred in 2012 and 2014, respectively. Four of the top ten highest rainfalls have occurred since 2005.[3]

Rain events are classified according to intensity, duration, and frequency (IDF)[4]. A rain event with a 1-in-2 year return period has a 50% chance of occurring in any year. A rain event with a 1-in-100 year return period has a 1% chance of occurring in any given year. See Appendix 1 for criteria for determining the return period of a rain event in Saskatoon. Return periods are used for design standards for major and minor components of Saskatoon's storm water infrastructure.[5]

In 2012, the City installed eight rain gauges to provide more real time rain data at locations throughout the city. Between 2012 and 2016, Saskatoon recorded 28 days with rain events exceeding a 1-in-2 year return period. Rain events with a return period of five years or more occurred in 2013, 2014, and 2015. (See Table below.) The rain events over the last five years resulted in minimal property damage.

Top 10 Highest Seasonal Rainfall Years in Saskatoon

2010	**569 mm**
1923	420 mm
2012	**401 mm**
2014	**391 mm**
1927	391 mm
1921	389 mm
1954	387 mm
1942	385 mm
2005	**385 mm**
1903	379 mm

Overall Frequency of Saskatoon Rain Events (2012 to 2016)

	Return Period	2012	2013	2014	2015	2016	Total
Overall	2 – 5 Year	8	5	6	3	3	25
	5 – 25 Year	0	1	1	0	0	2
	25 – 100 Year	0	0	0	1	0	1
	> 100 Years	0	0	0	0	0	0
	Total	**8**	**6**	**7**	**4**	**3**	**28**

[3] Seasonal rainfall is from April 1st to September 30th. Rainfall data prior to 2012 is from the Environment Canada rain gauge and caution is needed in relying on their data. As recent as 2016, Environment Canada reported annual rainfall which included "incomplete data". Seasonal rainfall data from 2012 to 2016 is an average of the eight City of Saskatoon rain gauges.

[4] The Intensity Duration Frequency (IDF) curves being used by the City are based on rainfall recorded at the Saskatoon International Airport by Environment Canada from 1926 to 1986.

[5] City of Saskatoon Design and Development Standards Manual: Section Six, Storm Water Drainage System. Available: https://www.saskatoon.ca/sites/default/files/documents/transportation-utilities/construction-design/new-neighbourhood-design/6._2017_section_six_-_storm_water_drainage_system.pdf [May, 2017]

Rain events are often localized and do not occur throughout the city. The eight rain gauges recorded an average of 11 rain events with a return period of more than 1-in-2 years over the last five years.

Saskatoon has recently experienced higher numbers and intensities of storm events than would be expected. The City is reviewing the return period criteria and the possibility of changing the requirement for the minor system design to handle a 1-in-5 year rain event because of the high likelihood of more intense rain events occurring as a result of climate change.

2.2 Benchmarking

Municipalities have different methods for charging for storm water, which make direct comparisons challenging. The 2017 Storm Water Utility Program Comparison report prepared by Saskatoon Water compared the Saskatoon's program with 13 other cities for different property types on the basis of costs and user-pay. Saskatoon was among the leading user-pay cities, ranking sixth among the 13 cities, which range from flat rates for all customers (e.g. Calgary) to charges for all customers based on area size and imperviousness (e.g. Mississauga). Some cities offer credit programs for properties where measures have been taken to reduce runoff.

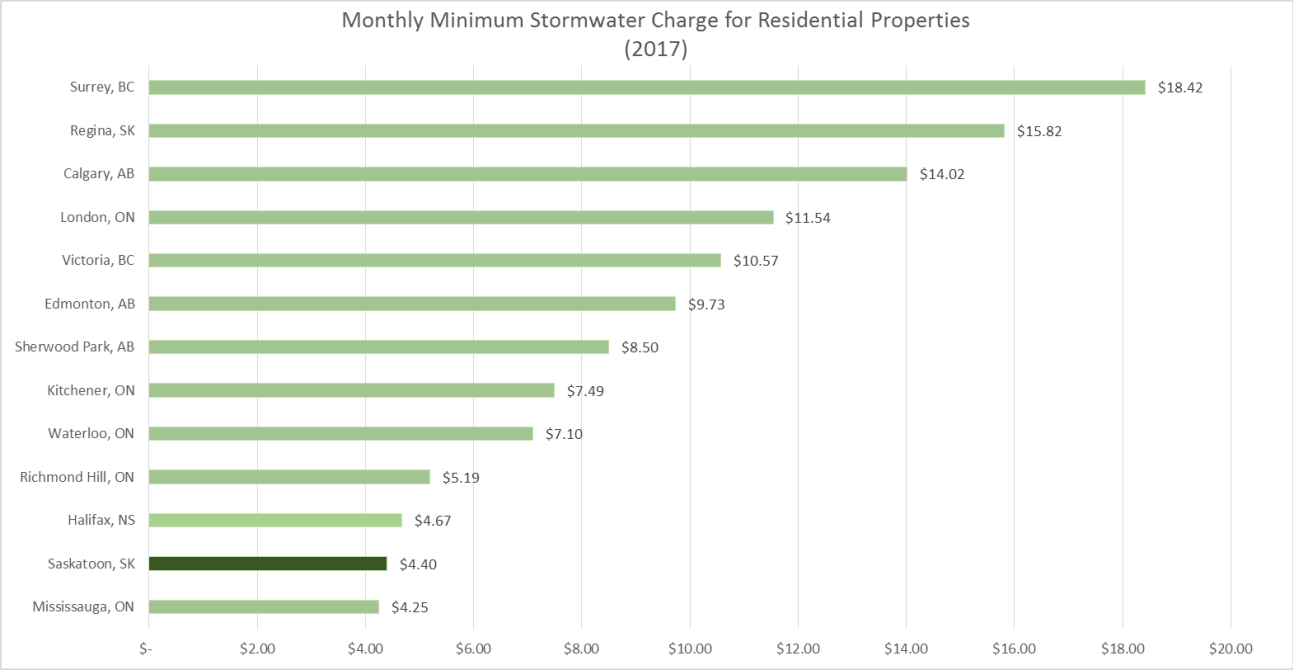
Among the 13 cities, Saskatoon has the second lowest storm water charge in 2017 for residential properties at $52.80.[6] Annual residential storm water charges for properties with buildings range from $51.00 in Mississauga, ON, to $221.00 in Surrey, BC, and are $190.00 in Regina, SK.

Saskatoon has between the fifth and eighth lowest charge for commercial properties, depending on the size and property characteristics. Annual storm water charges for a typical large shopping centre ranges from $102 fixed rate charge in Sherwood Park to $192,915 in Mississauga. Saskatoon's maximum annual storm water charge is $4,488 in 2017 and will increase to $5,280 in 2018. Unlike Saskatoon, which has a cap of 100 ERUs in 2018, some cities have no cap which results in higher charges. In 2016, Mississauga implemented a storm water charge with no cap, resulting in a 2017 charge of $3.24 million for the Pearson International airport.[7]

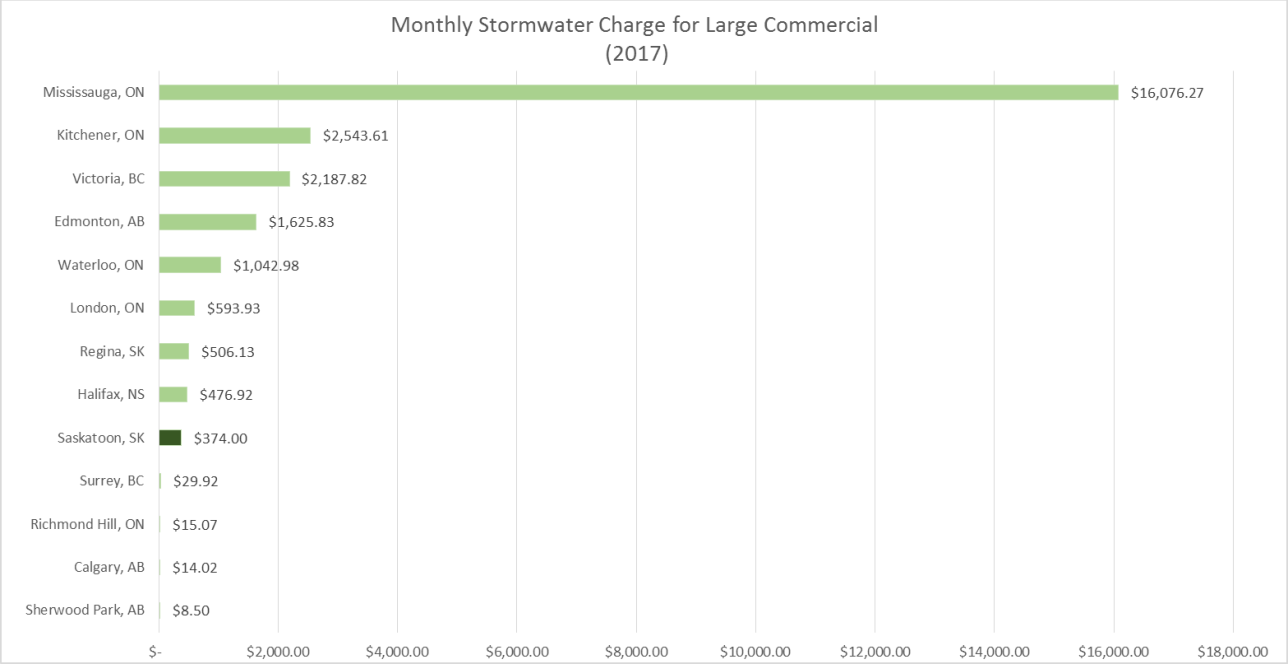
Winnipeg has no storm water utility; therefore, was not included in the benchmarking. Winnipeg has a charge of $71 for the connection of a sump pump to the sanitary system.

[6] Saskatoon's temporary Flood Protection Program annual levy of $54 per meter is not included.
[7] The storm water charges are being disputed by the property owner. https://www.mississauga.com/news-story/7225036-city-of-mississauga-sues-operators-of-pearson-airport-over-stormwater-fees/

Monthly Minimum Storm Water Charge for Residential Properties (2017)



Monthly Storm Water Charge for Large Commercial (2017) [8]



[8] Shopping Centre with an area of 46,426 m^2 and impervious area of 42,082 m^2. *Assumed zoning code of CB1.

2.3 Strengths

User-Pay Funding Model: Saskatoon has been a leader among Canadian municipalities in implementing a user-pay funding model for commercial, institutional, industrial, and multi-residential properties, phased in over seven years from 2012 to 2018. Storm water charges for these properties approximate the proportionate amount of runoff from their properties to the storm water system.

Robust Post-1989 Design Standards: In 1989, storm water standards for new neighbourhoods were established to handle 1-in-100 year storms, with streets designed to convey water during severe storms. Storm water ponds in low lying areas are used to manage runoff to prevent flooding and improve water quality prior to flowing into the river.

Best in Class Modelling: Saskatoon has strong in-house infiltration and modelling expertise that provides the necessary understanding of storm water runoff and the infrastructure necessary to manage it.

2.4 Weaknesses

Historical Design Standards: Surface flooding during high-intensity storms is an issue for many low lying areas that were developed prior to Saskatoon's new design standards adopted in 1989. The increased number of rain events that have been experienced in recent years suggest that the IDF curves based on past rainfalls, and used for design standards, must be updated to be representative of rainfalls that we may expect in the future due to climate change.

Condition of Older Infrastructure: Storm water infrastructure has a limited life expectancy. Over time, components such as pipes, culverts, and catch basins must be repaired or replaced. Some of Saskatoon's existing storm water infrastructure dates back to 1908. Improving our strategy to assess the condition of our infrastructure will ensure we are investing in rehabilitation and renewal for lowest life cycle costs.

Ongoing Maintenance: Storm water infrastructure requires ongoing maintenance to ensure that the system is operating at capacity. Further evaluation is needed to identify maintenance priorities and allocate resources to these areas.

Drainage Bylaw Enforcement: Neighbourhood storm water drainage is negatively impacted by properties which are developed contrary to approved design standards, resulting in flooding for homeowners and their neighbours. In the Montgomery neighbourhood, drainage ditches and culverts are often not properly maintained, particularly when new development occurs. Inspections when development occurs will help to minimize future problems.

Sump Pump Drainage: Over the years, various standards for weeping tiles and sump pump drainage have been in effect. Issues that currently impact citizens and neighbourhoods with high ground water include drainage from sump pumps that cause slippery sidewalks and ponding in yards. Drainage into the sanitary system increases

wastewater treatment costs and increases the risk of sewage back-ups during intense rain events.

2.5 Threats

More Frequent Intense Storms: Rainfall events are becoming more frequent and more intense. With increasing economic losses due to flooding, this trend is unlikely to subside. According to Environment Canada, severe weather events that used to happen every 40 years can now be expected every six years.[9]

Confederation Drive

Higher Groundwater Levels: Higher groundwater levels have changed drainage patterns as water is unable to seep into the ground. If high groundwater levels continue, they will impact neighbourhood drainage and contribute to east riverbank slumping and slope failure.

Infill Development: More infill reduces greenspace and increases surface runoff, placing a higher demand on existing storm water infrastructure. Cumulative impacts of infill development on existing storm water infrastructure need to be determined to ensure that appropriate policies and standards are in place to minimize surface flooding.

Regulatory Requirements: Evolving federal and provincial regulations may impact storm water runoff quality to the river, requiring new standards for storm water infrastructure.

Storm Water Pond Integrity: Sediment build-up in storm water ponds have the potential to put their effectiveness at risk, and will require significant costs in the future to maintain and remediate. The cost of regular maintenance is an important consideration when evaluating new storm water ponds.

2.6 Opportunities

Community Awareness: Communications can increase awareness of how residents can take actions that will make their properties more flood resilient, and understand responsibilities they have to minimize drainage from their properties to neighbours' properties.

New Technology: New technologies can be used to make the City more flood resilient. For example, live web cams can be used to monitor intersections that are at risk of flooding to dispatch staff and close roads in a timely manner to improve safety during

[9] Insurance Bureau of Canada (2015). "Toward a safer Saskatchewan: An Update from Saskatchewan's Home and Business Insurers," page 4. Available: http://assets.ibc.ca/Documents/Facts%20Book/Industry_Updates/2015/SK-SOI.pdf [2017, May]

intense rainfall events. Other new technologies can be used to enhance monitoring and improve the quality of water entering the river.

Low Impact Development (LID): *Low Impact Development: Design Guide for Saskatoon* was prepared by the City in 2016 to provide options to reduce runoff volume, improve runoff water quality, and delay peak runoff flows from entering the storm water system.[10]

Green Infrastructure: The development of the City's Green Infrastructure Strategy will contribute to storm water planning that incorporates natural systems and creates new designs to mimic natural features and processes.

2.7 Key Risks

The following safety, property damage, and environmental risks are associated with storm water and its related infrastructure.

Risks of injuries and fatalities associated with:

- Intersections and streets when they flood.
- Manhole lids coming off during intense rains and hitting pedestrians or vehicles
- Open manholes.
- Slippery sidewalks due to rain, snow, or discharge from sump pumps.
- Riverbank instability influenced by high groundwater levels.

Risks of public and private property damage associated with:

- Storm sewer capacity in some areas.
- Drainage in some areas.
- Riverbank instability.

Risks to the environment associated with:

- Outfalls and other infrastructure that may catch beavers and other small animals
- Spillage, dumping, and drainage of toxic materials into catch basins

> ***There will always be a chance of basement flooding, no matter what municipalities or private homeowners do to reduce the risk.***
>
> Institute for Catastrophic Loss Reduction

[10] City of Saskatoon (2016). *Low Impact Development: Design Guide for Saskatoon.* Available: https://www.saskatoon.ca/sites/default/files/documents/transportation-utilities/construction-design/new-neighbourhood-design/low_impact_development_design_guide.pdf [May, 2017]

3.0 STORM WATER MAINTENANCE AND PRESERVATION

3.1 Minor System

Condition Assessment

Storm Collector and Trunk Main conditions are determined by using a Closed Circuit Television (CCTV) inspection. Between 2013 and 2016, over 52 km or about 7% of storm sewers were cleaned and inspected, mostly as part of the roadways preservation work. A structural condition grade is assigned to each pipe based on a five-point scale from “A” to “F”.

In 2016, Major Projects contracted the cleaning and inspection of an additional 25 km of storm sewer mains. Priorities included storm water sewers servicing known flood risk areas and the east riverbank area, and a sample of storm sewers of various ages and types in different neighbourhoods.

Of the 25 km of pipes contracted, 11.5 km were completed in 2016 and 3 km could not be cleaned with available equipment. Approximately 2 km of pipes were given a grade of F. Inspections identified the following issues:

- High levels of sediment (50% or more blockage)
- Concrete, bricks, and rocks in the pipes
- Large pipe separations and missing walls
- Offset joint repairs
- Manhole drop structures
- A beaver dam

The remaining contracted sewer inspections were completed in early 2017.

The pictures shown on this page are of blocked storm water pipes.

Force Mains: Force mains cannot be assessed using CCTV inspection because there are no entry chambers. The overall condition is considered "Very Good" because the average age is 22 years old and the majority of the inventory is plastic.

Service Connections: The condition of plastic connections are considered to be "Good" based on low failure rates. The seven remaining fiber connections in the City are generally considered to be in "Poor" condition as they have a higher probability of failure.

Catch Basins & Leads: Catch basins are visually inspected and cleaned yearly.

Manholes: Manholes are visually inspected prior to road resurfacing projects and as part of an annual condition assessment program. In 2015, Major Projects inspected 1,000 manholes to develop future manhole rehabilitation and inspection programs.[11]

Culverts: Similar to storm mains, culvert conditions are determined through CCTV inspections prior to road resurfacing projects. A desk-top review of culverts in the Montgomery neighbourhood was completed in 2015.

Outfalls: In 2016, Saskatoon Water and WWS visually inspected and reported on all outfalls and developed an action plan for maintenance. Following the report, WWS removed debris from several outfalls in 2016, with additional maintenance planned for 2017.

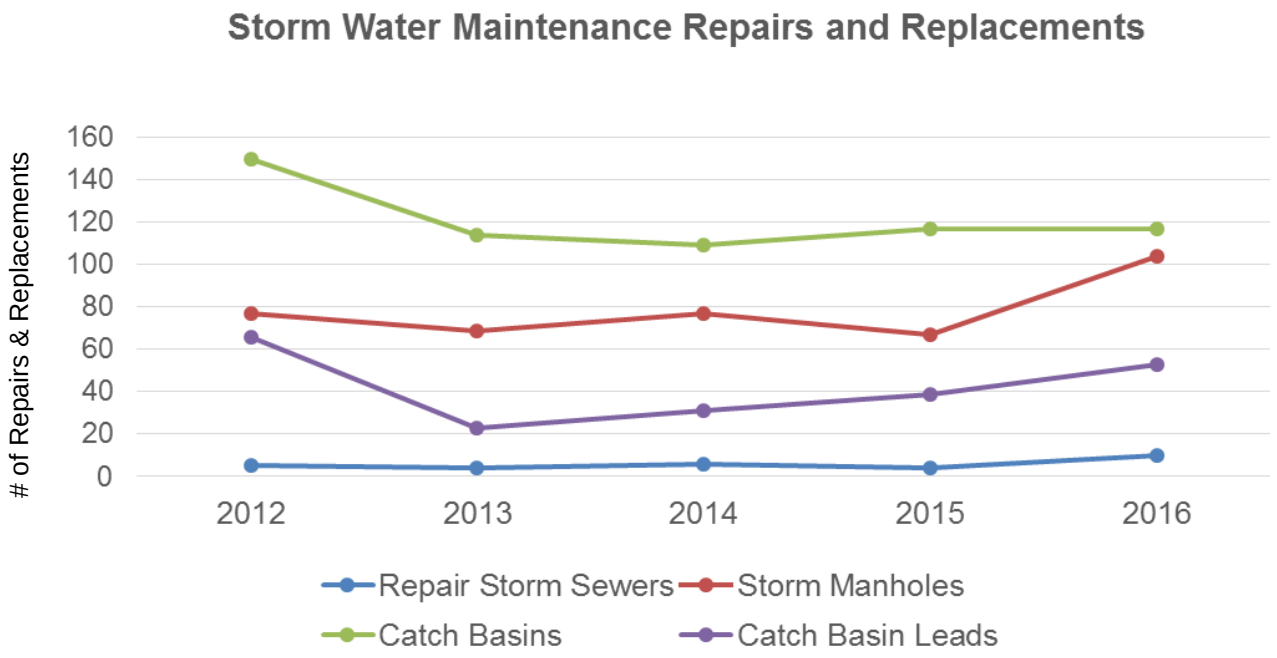
Maintenance and Operations

The Wastewater Treatment Plant (WWTP) maintains the Stonebridge and Idylwyld Storm Water Lift Stations.

R&O maintains and keeps the minor system's above ground storm water infrastructure (e.g. catch basin grates, culverts) in good operating condition. The fall street sweep is funded by the Storm Water Utility to minimize leaves and debris from blocking catch basins. The picture to the right is of a blocked catch basin.

WWS operates and maintains below-ground storm water infrastructure including sewer mains, catch basins, catch basin leads, manholes, and connections. Funding for the 734 km of storm water sewer maintenance is approximately one-quarter the funding allocated for the 1,075 km of waste water sewer lines. The chart below shows the number of WWS repairs and replacements of storm water infrastructure.

[11] Public Works contracted 32 manhole replacements in 2014 at a cost of $350K.



Preservation

Most of the City's storm water infrastructure preservation program has been reactive to address infrastructure failures, with emergency repairs being a priority for funding. For instance, in 2015, resources were allocated to an emergency storm water main repair at Mackie Crescent.

Some sewer mains have been rehabilitated using cured-in-place pipe lining, which is more cost effective than traditional open excavation replacement methods. No excavation is required as the liner is inserted through the manhole and lines the existing pipe with a new pipe. Force mains are replaced by open trench excavation.

Identifying our City's aging storm water system's current condition will provide the foundation for a proactive preservation plan, including funding requirements, to reduce the long-term life cycle costs of our assets.

Some areas throughout Saskatoon experience ongoing drainage issues with localized surface flooding and ponding, which results in ongoing maintenance costs absorbed by WWS and R&O. Each situation is unique – sometimes drainage issues and flooding risk can be significantly reduced with a relatively small investment in engineered design and grading or reconstruction of public property, such as lanes and easements. The economic payback, as a result of reduced maintenance costs, can be less than ten years for these sites.

Actions

- Develop a long-term annual inspection plan to strategically inspect storm sewers and report updates in an annual "State of Storm Water Infrastructure Report". (SW, MP)

- Complete annual visual outfall inspections and complete an "Outfall Assessment Report and Action Plan". (SW, WWS)
- Prioritize the Fall Street Sweeping program to sweep neighbourhoods based on minimizing catch basin blockages. (R&O)
- Complete an asset management plan to rehabilitate strategic storm water mains including lining trunks based on the lowest life cycle cost. (MP, SW)
- Report annually on maintenance and preservation activities of storm water infrastructure. (SW, R&O, WWS, MP)
- Update the City culvert inventory, assess conditions, and prioritize culverts for maintenance and preservation. (SW, R&O)
- Develop and prioritize an annual list of drainage trouble spots that require ongoing maintenance to reconstruct within available budget. (SW, R&O, WWS)

3.2 Major System

Pond Condition Assessment

In 2016, Saskatoon Water, in conjunction with WWS and Parks, conducted a visual assessment and is reporting on all storm water ponds. WWS also conducts water quality monitoring. Dry ponds are visually inspected by WWS as necessary to ensure proper drainage. Ponds have not been thoroughly assessed to determine levels of sediment build-up which could impact effectiveness.

Maintenance and Operations

WWS is responsible for maintaining storm ponds to keep them working, as designed to convey storm water. Citizens living close to storm ponds expect that maintenance will be performed to enhance storm pond aesthetics and prevent odors. Fountains installed in some ponds for aesthetic purposes have high maintenance costs funded by storm water charges.

Invasive species, including goldfish and koi, have been identified in several storm water ponds. Several options are being considered by WWS and ECI to prevent the fish from spreading.

Preservation

Regular sediment removal is needed to keep storm water ponds in good working condition.[12] The cost of removing sediment will vary depending on the size and age of pond, whether it has a pond forebay, and the work required.[13] Other preservation measures also are required to maintain the integrity of the ponds (e.g. In 2016, the

[12] The United States Environmental Protection Agency Storm Water Technology Fact Sheet Wet Detention Ponds recommends removing the bottom sediments every two to five years. https://nepis.epa.gov/

[13] A presentation to the City of Saskatoon by CH2M HILL Canada Limited in October 2016 indicated that an assessment of 11 storm water ponds in Calgary identified average immediate remediation cost requirements of about $139,000 per pond, and future costs averaging $1.75 million per pond. In December, CH2M HILL Canada Limited estimated the cost to assess requirements for two Saskatoon storm water ponds at over $112,000 (does not include remediation).
The City of Guelph has estimated costs of moving sediments from two storm ponds to be $280,000 for one and $1 million for the second.

Storm Water Utility contributed to reconstructing the John Avant Storm Pond retaining wall).

Actions

- Complete annual visual storm pond inspections and complete a Pond Assessment Report and Action Plan. (SW, WWS)
- Complete more comprehensive technical assessments of storm water pond integrity. (SW, WWS, C&D)
- Develop level of service standards for maintenance of storm water ponds. (WWS)
- Implement a plan to eradicate invasive species from the storm ponds. (ECI and WWS)
- Develop a long-term, life-cycle plan with costs for removing sediment from the storm water ponds. (SW, WWS)

3.3 Montgomery

The Montgomery neighbourhood's drainage infrastructure of ditches and culverts is unique in Saskatoon, with distinct drainage and ponding challenges. Drainage issues often occur during spring melt when City crews are called on to thaw frozen culverts with a steamer and to pump out water. The number of calls from citizens requesting City assistance with drainage has varied from 4 in 2016 to up to 50 calls in spring 2017, with an average of about 20 calls annually over the last 6 years.

Drainage challenges may arise due to the following:

- Driveways are constructed that restrict drainage
- Culverts are not built to required standards
- Culverts are damaged
- Culverts become blocked with ice or debris
- Grading is not optimal for drainage
- Residents are unaware of their responsibilities for maintaining culverts in front of their properties

Spring melt in Montgomery Place, 2017

Over time, the sand used by the City in the winter to maintain road safety can fill in ditches, change grades, and reduce the capacity of culverts. Snow clearing operations may contribute to increased snow and debris in ditches.

Although administratively easy to apply, a singular approach to drainage requirements may not result in the most effective allocation of resources because of elevation and grading differences throughout the neighbourhood.

Actions

- Provide guidance for residents who want to modify an existing crossing or build a new crossing using the Private Driveway Crossing Permit process, including site assessment and advice on culvert size and elevations. (SW)
- Assess the feasibility and parameters for a program for rehabilitating Montgomery area drainage. (SW, R&O)

- Collaborate with Community Standards to review options for increasing compliance for private responsibilities for maintaining effective drainage. (CS, SW)
- Update the FAQs used by R&O customer service staff with the Driveway Crossing Permit process and provide to customer service groups for usage (Transportation, BSD, CS, SW, C&D, and R&O.)
- Develop communication flyers on City and citizen responsibilities for culvert drainage and distribute to Montgomery residents. Include this information on the City website. (SW, Comm)

3.4 Cross Connections

Storm and sanitary systems should be completely separate from one another. Inflow and Infiltration (I&I) describes ways that groundwater and storm water enters the sanitary system. Inflow is storm water that enters the sanitary system through a direct connection, such as a sump pump or roof drain that is improperly or illegally connected, or water entering manhole lids during a rain event. Some cross connections between sanitary and storm water systems may be due to errors during construction. Infiltration is groundwater that enters the sanitary system through cracks or leaks in manholes and sanitary sewer pipes caused by age-related deterioration, loose joints, installation or maintenance errors, poor design, and/or root penetration.
Cross connections can result in the following issues:

- Sanitary effluent entering the storm water system could flow untreated to the South Saskatchewan River and harm the environment.
- Sanitary sewers could back up into basements or through manholes onto streets if high volumes of storm water overload the system during intense storms. The average cost of flooding from sanitary sewers are significantly higher than the cost of flooding from overland water in Saskatoon.
- Unnecessary water treatment costs are incurred when clean storm water is transferred to the WWTP, and these costs are transferred to citizens through higher utility rates.
- Due to wet weather flow, the WWTP could experience capacity issues and require expensive capital expansion.

After intense rainfalls caused sanitary backups in 2005 and 2007, sump pumps and backflow devices were installed by residents in high risk zones to reduce damage during severe rain storms. Installation of “winter weather” bypass devices were approved to direct drainage from sumps into the sanitary system during the winter to reduce icy and dangerous sidewalks. Although these connections are to be disconnected in the spring, there is no enforcement.

High groundwater levels have been experienced throughout Saskatoon due to a decade of record rainfall. As a result, sump pumps that were intended to temporarily drain water from intense storms are constantly draining groundwater in some areas. Properties that are most likely to have sump pump issues are in low-lying areas with deep basements. Hampton Village, Willowgrove, and Briarwood are neighbourhoods with a concentration of sump pump issues. (See Appendix #2 for a map of areas with known sump pump issues.)

The following types of issues are associated with continually running sump pumps:

- Wet and slippery sidewalks in summer.
- Green algae growth on sidewalks.
- Icy and slippery sidewalks in the winter.
- Sumps draining to City parks resulting in boggy park areas, difficulty mowing, and rut damage.
- Unauthorized connections to floor drainage and sanitary systems and temporary winter connections not being disconnected in the summer are increasing the risk of sanitary backups during severe rainstorms, particularly as more sumps are connected to the sanitary system.
- Extra costs and strain on the WWTP capacity.
- Wet yards and drainage onto neighbours' properties causing disputes.

Actions

- Identify the extent and cost of inflow and infiltration issues in Saskatoon through quantifying I&I (peak, minimum, average flows) to the WWTP and the cost of treating additional groundwater or storm-related flow. (SW)
- Identify and map locations of cross connections with storm water flowing to sanitary sewers through implementing a plan with existing maps, as-builts, flow meters, CCTV monitoring, and testing. (SW)
- Utilize modelling to identify priorities for actions to eliminate cross connections. Develop and ensure new standards and policies that minimize issues related to sump pumps are followed for new neighbourhoods and areas with redevelopment. (SW, CS, BSD)
- Develop a communication piece for citizens on City of Saskatoon bylaws related to sump pump drainage, why they are important, and ways they can mitigate some of the negative impacts. Include this information on the City website. (See City of Winnipeg website.) (SW, CS)

4.0 STANDARDS, BYLAWS AND ENFORCEMENT

Saskatoon's storm water management is primarily impacted by the following bylaws and standards:

- *Bylaw No. 8379, The Drainage Bylaw, 2005* regulates the drainage of storm water between private properties to protect property and abate nuisances.
- *Bylaw No. 8987, The Storm Water Management Utility Bylaw, 2011* regulates the storm water collection and transmission, the Storm Water Utility, and the charges for all properties benefiting from the system.
- *Bylaw No. 5115, The Sewer Use Bylaw* regulates the use of storm sewers.
- *Bylaw 4785, Private Crossings Bylaw* requires a permit for the construction of driveways across City property.
- *The Design and Development Standards* (*Section Six)* provides updated information on storm water drainage requirements for new developments.

The Drainage Bylaw has not been consistently enforced, which has resulted in unresolved drainage issues and complaints from citizens. A defined process will provide more consistency in following up with complaints, inspections, using bylaw notices, and providing a time period for compliance. Some exceptions and flexibility will be needed to take into account specific circumstances. Community Standards has initiated a comprehensive study to increase drainage standards compliance and minimize runoff issues between neighbours.

The *Private Driveway Crossing Permit* managed by Transportation includes the specifications for a driveway crossing with a culvert. Some citizens may not have been aware of requirements and have installed non-compliant culverts. Information needs to be communicated and be easily available to residents, and a process implemented so that non-compliant crossings that are creating water issue for neighbours are resolved in a timely manner.

Saskatoon Water Engineering & Planning reviews and defines design storm water infrastructure standards for new developments and redevelopments. The standards provide for requisite system capacity and storm water runoff quality to maintain the integrity of the storm water system.

Actions

- Complete a comprehensive study to define a process for more consistency in applying drainage standards. (CS, SW)
- Update the Storm Water Management Utility Bylaw (property exemptions and changes to the ERU rate). (SW, Solicitors)
- Continue to review design standards for redevelopments and new developments to ensure a sustainable storm water conveyance system. (SW)
- Enhance awareness on driveway crossing requirements through flyers and enhanced website. (SW, Transportation, Communications)

5.0 LONGER TERM PLANNING

Storm water infrastructure modelling helps to ensure that adequate runoff capacity is maintained in the storm water system to support development in both greenfield areas and infill areas. Saskatoon Water's modelling capabilities are being applied to identify the storm water system capacity needed to support the *"Growth Plan"* for population growth to 500,000. The assessment identifies high level options and costs under various scenarios.

Longer-term planning also considers changes to design standards and storm water capacity required for more frequent and intense severe rain events. IDF curves identify the significance of rain events and how often it is likely to occur. New IDF curves are being evaluated to take into account climate change and will be incorporated into new design standards.
Other trends being incorporated in storm water capacity modelling and longer-term infrastructure requirements are land use intensification and greater proportion of impervious surfaces in new neighbourhoods and infill properties.

Actions

- Update the IDF curves for rain event return periods and runoff coefficients based on the impacts of climate change. (SW)
- Model the capacity of the storm water system to support short and long-term development using expected runoff based on updated hard surface ratios, infiltration tests, and new IDF curves. (SW)
- Incorporate the impacts of climate change in new storm water infrastructure design standards. (SW)

6.0 EAST RIVERBANK STABILIZATION

Saskatoon's east riverbank has a long history of slope instability influenced by several factors:

- Geology (soil composition and strength)
- Geometry (steep slope)
- Groundwater levels
- Landscaping and associated loading

Record high groundwater levels over the last decade have triggered slope failures and impacted public and private properties. Keeping high usage Meewasin trails and strategic roadways along the riverbank open and accessible is important for Saskatoon's quality of life and attractiveness as a place to live and visit. Over the last five years, remediation has been completed for the following:

- Meewasin Trail and Saskatchewan Crescent at 17th Street (2013)
- Storm sewer outfall due to erosion at 15th Street (2014)
- Meewasin Trail and Saskatchewan Crescent at 16th Street (2016)

The east riverbank is regularly assessed through an extensive spring visual reconnaissance, instrumentation readings, and more detailed and frequent monitoring and analysis of higher risk areas such as the 11th Street slope and between University and Broadway bridges. Regular monitoring reports are provided to local area residents in response to the 11th Street slope.[14]
If a concern related to slope stability is identified, the City identifies and addresses potential safety concerns through trail and road closures, evacuation alerts, and other measures. If more formal investigation is required, the project is considered relative to other priorities and available funding. Qualified external consultants are contracted for formal geotechnical assessment, conceptual designs, and detailed designs. Priority setting for assessment and remediation considers the value and importance of at-risk public infrastructure, expectations for timing of further slope failure, and assessment and mitigation costs. The City does not fund construction on private properties. Riverbank stabilization costs were not incorporated when setting and approving the current user-pay Storm Water Management charge. Although future riverbank slumping is likely, the timing, location, and severity is unpredictable. Based on recent projects, slope and roadway restoration costs range from about $1.5 million to $3.0 million per project.

Actions

- Develop a Slope Stability Management Framework in conjunction with stakeholders. (SW, BSD, P&D, Solicitors, ECI, Meewasin)
- Oversee instrumentation readings and a spring visual east riverbank reconnaissance and report. (SW)

[14] Between 2012 and 2016, over $900,000 has been expended by the Storm Water Utility on geotechnical expertise for the 11th Street slope.

- Oversee continued monitoring and reporting for the 11th Street slope. (SW)
- Collaborate in completing development policies for riverbank areas. (BSD, P&D, SW, Solicitors, Communications)
- Assess slope stability between the Broadway and University bridges using 3-D modelling. Evaluate the benefits and costs of reducing groundwater levels through sub-drainage in high-risk areas for lowest life-cycle costs. (SW, WWS)
- Leverage resources and expertise from Public Safety Canada to assess risks associated with riverbank slope instability. (EMO)
- Secure in-house geotechnical expertise to oversee east riverbank stabilization. (SW)
- Maintain riverbank area storm water infrastructure to high standards. (WWS)

7.0. CITIZEN AWARENESS AND ENGAGEMENT

Effective drainage and storm water management can only be achieved with citizen buy-in. Awareness of storm water challenges will help garner support for funding priorities. A communication and engagement strategy can utilize a variety of vehicles to convey the following information:

- Public and private responsibilities for storm water drainage.
- Best practices and actions that citizens and developers can take to use storm water as a resource and reduce property flood damage including use of Low Impact Development (LID) measures[15].
- Importance of maintaining and preserving storm water assets including ponds and out-of-sight underground infrastructure in order to prevent higher future costs for emergency repairs and replacement.
- Awareness of impending severe rain events and actions to protect safety and minimize property damage.
- Storm water drainage into the South Saskatchewan River and requirements to keep harmful materials from entering the storm water system.

Actions

- Develop and implement a communication action plan to meet the objectives and to include the following vehicles (SW, Communications, Media Relations):
  a. Flyers in targeted areas (11th Street, higher risk areas, Montgomery)
  b. Utility bill inserts
  c. Saskatoon.ca website
  d. Social Media
  e. Public Service Announcements
  f. NotifyNow
  g. Intersection signage
  h. Community meetings
  i. Community Association newsletters
  j. Trade shows (e.g. GardenScape)
  k. Public relations opportunities (e.g. Water Week)
- Participate in Local Area Planning community meetings to increase citizen understandings of neighbourage drainage. (SW, P&D)
- Develop and implement communications for Montgomery residents to increase awareness about drainage, crossing permits, and related bylaws (website and flyers). (Comm, Community Consultants, Community Associations)
- Partner with Meewasin Valley Authority (Meewasin), Trout Unlimited, Girl Guides, Saskatoon Schools, and Partners for the Saskatchewan River Basin to deliver the Yellow Fish Road Program. (ECI, SW, WWS)
- Partner with the University of Saskatchewan and Food Bank (33rd Street Community Garden) to create awareness of rain gardens through brochures, a demonstration project, and display. (ECI, SW, Communications)

[15] *Low Impact Development: Design Guide for Saskatoon* was developed with funding from the Storm Water Utility in 2016.

- Utilize NotifyNow, triggered by Environment Canada severe rainfall warning, to inform residents when precautionary measures to ensure personal safety and/or minimize damage to their property may be necessary. (EMO, R&O)
- Keep local area residents aware of any slope movement and associated risks through regular notices. (SW)
- Provide citizens with appropriate information about invasive species and the safety of storm ponds for recreation activities, such as skating including appropriate updated signage at all storm ponds. (CY, WWS, SW)
- Work with Community Standards to provide information to households on proper sump pump drainage. (CY, SW)

8.0 EMERGENCY RESPONSE PLANS FOR SEVERE STORMS

Robust planning and response plans for severe rain events are important to support public safety and mitigate damage to property from flooding. Flooded underpasses and intersections and risks associated with manhole covers that come off under high water pressure can cause injuries and fatalities. Fifteen locations have been identified to be dangerous during flooding.

R&Os' *Standard Operating Procedures for Water and Sewer: Severe Storm Response*[16] provides emergency procedures to ensure safety and minimize the impacts of flooding during major rain events. Key components include ensuring that flooded roadways are closed and flooded intersections are not left unattended. Challenges can arise when unexpected heavy rainfall causes flooding outside of regular working hours when R&O is unable to respond as quickly as needed to close intersections in a timely manner.

Confederation Drive/Laurier Drive and Idylwyld Drive/ Circle Drive have a history of significant surface flooding. Although it is not feasible to implement further engineering measures to prevent flooding at these intersections, it may be possible to limit the potential damage and hazard to vehicles and improve safety by implementing traffic control measures to alert drivers of potential danger.

Actions

- Update Standard Operating Procedures for Water and Sewer: Severe Storm Response and include protocol that protects public safety through a collaborative and timely response to unexpected severe rain events outside of R&O's and WWS's regular business hours. (WWS & R&O supported by Fire, EMO, Police, & SW)
- Develop protocol for NotifyNow to deploy R&O and WWS staff in a severe storm event after normal working hours to generate a quicker response time. (EMO, R&O, Environment Canada Meteorological Services)
- Develop an Emergency Measures Flood Response Plan to be activated in the event of a severe storm that produces multiple utility losses, catastrophic property damage, and a threat to public safety. (EMO, Corporate Risk, Fire, Police, R&O, WWS)
- Develop a plan for reducing risks associated with manholes and lids. (R&O, WWS, supported by SW)
- Develop a business case for video cameras at intersections with high risk of flooding to serve multiple needs, including triggering closure during flooding. (R&O, Transportation, SW, Police, EMO, SGI)
- Assess the feasibility of installing gates and warning lights at Idylwyld Drive/Circle Drive and Confederation Drive/Laurier Drive. (SW, R&O, Transportation)

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16 https://www.saskatoon.ca/sites/default/files/documents/transportation-utilities/saskatoon-water/SSRTrainersPresentation.pdf

WS-C02 Severe Storm Response does not apply to storms producing multiple utility lossess, catastrophic property damage or a serious threat to public safety.

9.0 STORM WATER QUALITY AND THE NATURAL ENVIRONMENT

Protecting our watershed and the sustainability of our natural environment is integral to overall storm water management. Prior to the 1990s, storm water management focused primarily on controlling water quantity. The focus has since expanded to more emphasis on water quality and the environment. Storm water runoff is increasingly seen not as a liability but as a resource. Saskatoon Water is collaborating with P&D, ECI, and other stakeholders in developing a Green Infrastructure Strategy that positions storm water as a multi-purpose resource. This long-term strategic framework also considers natural areas, climate change, and cumulative impacts of growth on our watershed in relation to storm water management.

Several City divisions, in addition to Meewasin and other federal and provincial bodies, have roles in protecting our watershed through regulating, planning, monitoring, reporting, and enforcing runoff quality, as well as operations and maintenance practices. An enhanced understanding of storm water runoff quantity and quality can be achieved through storm water monitoring and reporting against common standards.[17]

Actions

- Collaborate with stakeholders to complete the Green Infrastructure Strategy. (P&D, ECI, SW, Parks, Meewasin)
- Collaborate with Meewasin and other stakeholders to develop standards for measuring and reporting water runoff quality. (ECI, SW))
- Increase source control for storm water runoff through oil and grit separators and low impact development. (SW, MP, C&D)
- Review and revise bylaws to ensure they are effective in sustaining the quality of water entering our watershed. (ECI, SW)
- Review and revise a response plan to minimize hazardous spill materials from entering the storm water system and watershed. (ECI, R&O, WWS)

[17] Saskatoon Water's Environmental Laboratory completes regular water quality sampling testing, and reporting for eight major outfalls. Testing and analysis following recognized procedures is completed for factors such as temperature, residual chlorine, phosphorous, nitrate, pH, coliform, etc.

10.0 UTILTY BILLING AND MANAGEMENT

A thorough assessment of revenues completed in 2016 identified gaps in collected revenues due to dated aerial maps initially used to assess hard surfaces and related charges for commercial, industrial, institutional, and multi-residential properties; and previous years' billing gaps due to reorganization and computer programming glitches.

Managing and evaluating the Storm Water Utility operating and capital budgets is complex because several divisions allocate expenses to Storm Water accounts and have various priorities to balance. Continued efforts are needed to ensure that appropriate expenses are budgeted, charged, and approved to Storm Water accounts so it can operate as a transparent user-pay utility.

Actions

- Continue to monitor and review the process for assessment and billing in collaboration with Corporate Revenue to ensure that billings for multi-residential, commercial, industrial, and institutional properties incorporate changes that impact storm water charges. (SW, CR)
- Complete a full evaluation of runoff for commercial, industrial, institutional, and multi-residential properties after the aerial photo is updated in 2017. (SW)
- Collaborate with other divisions to determine a more effective process for approving and allocating costs to appropriate operating and capital accounts and job numbers to allow for more effective budget management. (BA, SW, CY, R&O, WWS, C&D)

11.0 FINANCIALS

11.1 Revenues

Storm Water Management Charge

The Storm Water Utility is funded by the Storm Water Management Charge. The unit of measure is an ERU, which is used by many municipalities for storm water utility billing. A single family residential dwelling is deemed to produce one ERU of storm water and represents 265.3 m^2 of impervious surface such as roofs, driveways, and sidewalks.

One ERU valued at $4.40 per month ($52.80 per year) is the amount charged to single family residential properties. Commercial, industrial, institutional, and multi-residential properties can generate significantly more storm water than single family residential properties generate. Therefore, they are charged multiple ERUs ranging from an annual minimum of two ERUs ($105.60) to a maximum of 85 ERUS ($4,488) in 2017.

The seven-year phase-in of ERUs charged to commercial sites began in 2012 with the annual caps shown in the table.

Year	Maximum Commercial ERUs	Annual Cost
2012	10	$ 528
2013	25	$1,320
2014	40	$2,112
2015	55	$2,904
2016	70	$3,696
2017	85	$4,488
2018	100	$5,280

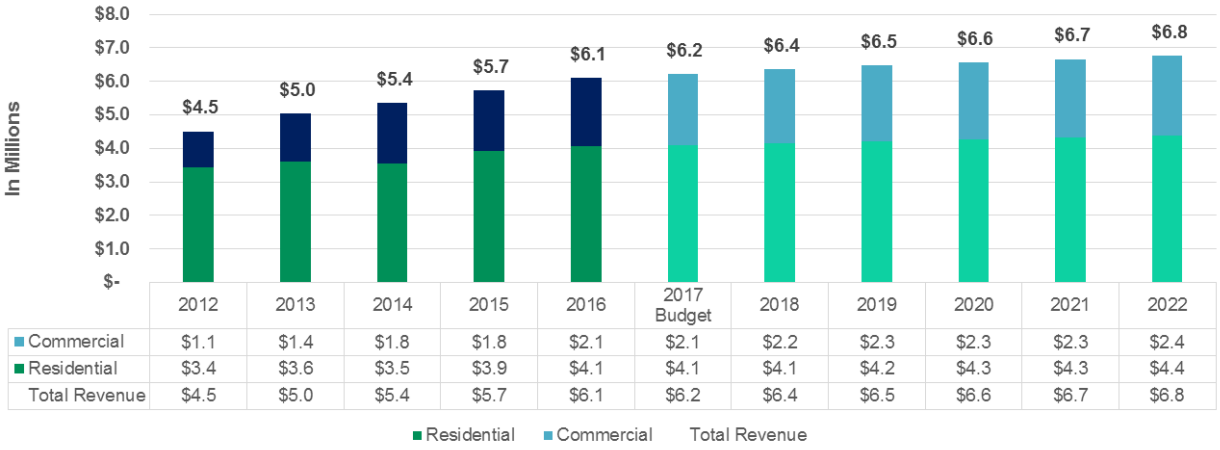
Roads, right-of-ways, and property zoned as agricultural are exempt from storm water charges. In 2014, the City exempted parks from future Storm Water Utility charges, which reduced Storm Water Utility revenues by about $200,000 per year.

Approximately one third of Storm Water Utility revenue is currently paid by commercial customers and about two thirds is paid by residential, including multi-residential, customers.

Revenues of $6.2 million are expected in 2017. The following graph shows actual revenues and future revenue projections if there were to be no change in fees based on the phase-in of the maximum commercial ERUs from 85 ERUs in 2017 to 100 ERUs in 2018 and 1.5% annual growth (about $100,000 per year) after that.[18]

[18] Saskatoon population growth projected by Conference Board of Canada is 1.5% annually.

Storm Water Utility Status Quo Revenue (In $ Millions)



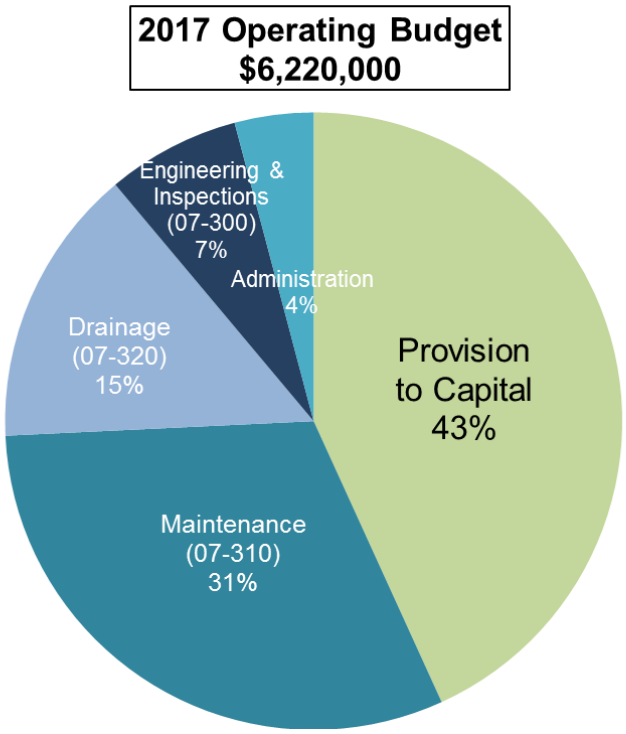
	2012	2013	2014	2015	2016	2017 Budget	2018	2019	2020	2021	2022
Commercial	$1.1	$1.4	$1.8	$1.8	$2.1	$2.1	$2.2	$2.3	$2.3	$2.3	$2.4
Residential	$3.4	$3.6	$3.5	$3.9	$4.1	$4.1	$4.1	$4.2	$4.3	$4.3	$4.4
Total Revenue	$4.5	$5.0	$5.4	$5.7	$6.1	$6.2	$6.4	$6.5	$6.6	$6.7	$6.8

Flood Protection Program

After intense rain events that caused sewer backups in 2005, a temporary Flood Protection Program was established with a $3.00 monthly charge on all water meters. The charge was increased to $4.50 in 2009. The program was extended and now is scheduled to sunset the end of 2018 after generating about $44 million in revenues to fund damage from the 2005 sewer backups, a program for sewer backup valve installation, and superpipes to reduce sewer backups during severe rain events. A deficit of about $0.3 million is projected for the initiatives already completed. The program has generated approximately $4 million annually.

11.2 Operating Expenses

The Storm Water Utility has a 2017 operating budget of $3.5 million for operating expenses and a transfer to capital of $2.7 million for a total of $6.2 million.

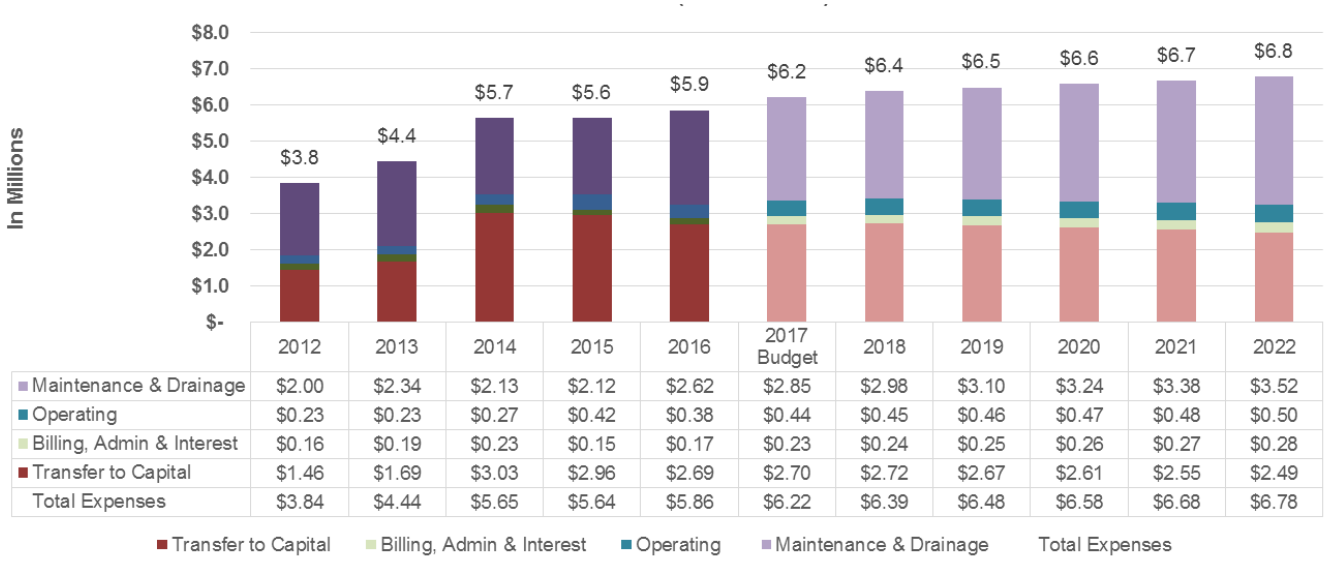


Major operating expense categories include the following:

- Maintenance and Drainage, of $2.8 million which includes:
  - $1.9 million provided to WWS to operate and maintain storm water infrastructure including storm water ponds, sewer mains, catch basins, manholes, and connections.
  - $0.9 million provided to R&O to maintain drainage, clear catch basin grates, and complete the fall street sweep.
  - Charges are expected to increase at approximately 4.3% annually, including inflation, growth, and higher operating costs as the city expands outward.
- Storm Water Engineering and Inspections includes salaries [(4.4 Full-Time Equivalents (FTEs)] and other operating expenses, such as administration cross charges, software, and vehicle expenses. Salaries include the following:
  - 2.0 FTEs for drainage inspectors with Community Standards.
  - 0.7 FTE for SW Engineering and Planning staff for management and engineering support.
  - 1.0 FTE for C&D for inspections and to support the Connections Desk.
  - 0.5 FTE for Major Projects for flusher truck operations.
  - 0.2 FTE for IT to help maintain the storm water infrastructure data in GIS.
  - Expenses are expected to increase at 4.3% annually for inflation and growth.
- Other Administration charges of $0.23 million include billings and collection of the storm water charge, administration cross charges, and insurance. These expenses are expected to increase at an average of 3% annually including growth and inflation. Interest revenue also is deducted from Administration charges.
- The Transfer to Capital is the difference between the annual estimated revenues and operating expenses and in 2017, was $2.7 million. The Transfer to Capital peaked in 2014 at about $3.0 million and based on status quo revenue, will decrease to $2.5 million in 2022 as storm water operating expenses increase at a higher rate than revenue increases.

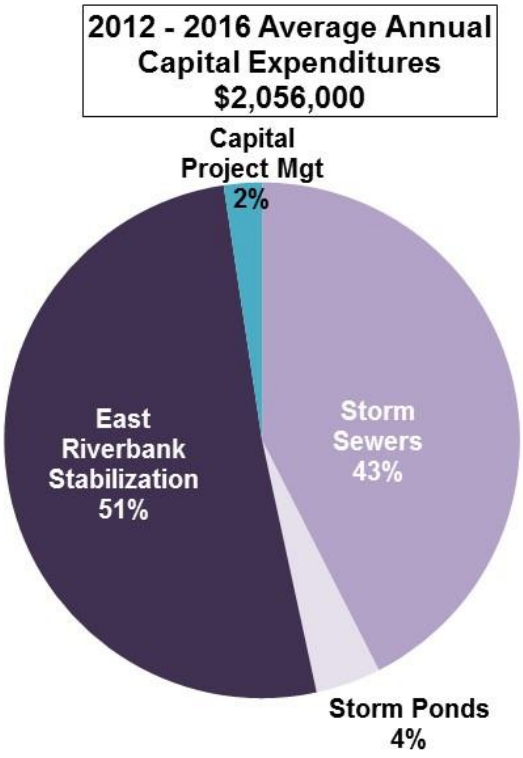
The graph below shows actual operating expenses between 2012 and 2016, the 2017 budgeted expenses, and projected operating expenses to 2022 based on status quo activities.

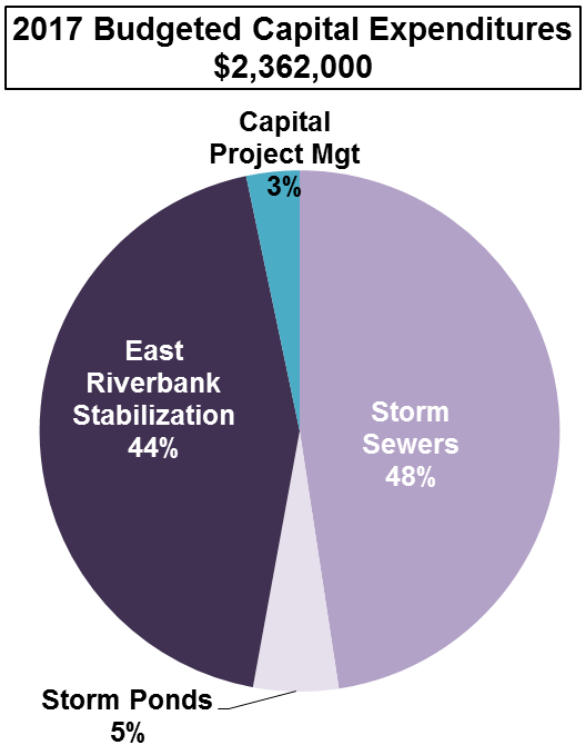
Storm Water Utility Status Quo Operating Expenses (In $ Millions)



	2012	2013	2014	2015	2016	2017 Budget	2018	2019	2020	2021	2022
Maintenance & Drainage	$2.00	$2.34	$2.13	$2.12	$2.62	$2.85	$2.98	$3.10	$3.24	$3.38	$3.52
Operating	$0.23	$0.23	$0.27	$0.42	$0.38	$0.44	$0.45	$0.46	$0.47	$0.48	$0.50
Billing, Admin & Interest	$0.16	$0.19	$0.23	$0.15	$0.17	$0.23	$0.24	$0.25	$0.26	$0.27	$0.28
Transfer to Capital	$1.46	$1.69	$3.03	$2.96	$2.69	$2.70	$2.72	$2.67	$2.61	$2.55	$2.49
Total Expenses	$3.84	$4.44	$5.65	$5.64	$5.86	$6.22	$6.39	$6.48	$6.58	$6.68	$6.78

11.3 Capital Expenditures





Between 2012 and 2016, the Storm Water Capital Reserve Fund was allocated an average of $2.4 million annually. On average, over the last five years, about $2.1 million has been expended annually for capital projects. The Capital Reserve Fund had $1.7 million at the end of 2016.

Budgeted and actual capital expenditures in any year fluctuate depending on the projects being undertaken and actual costs relative to estimated. If projects are completed and actual costs are less than budgeted, the unexpended funds are returned to the Storm Water Capital Reserve. Sometimes projects span more than one fiscal year – some projects funded in 2016 are being completed in 2017.

The following summarizes major capital expenditures for each major capital project category.

East Riverbank Stabilization (1493)

Between 2012 and 2016, an average of about $1.2 million annually expended on east riverbank monitoring and remediation of City-owned property accounted for about one half of the Storm Water capital expenditures. Riverbank monitoring and inspections are conducted annually to support the asset management plan for the City's east riverbank, up to and including some City streets. Significant projects have included monitoring and analysis of the 11th Street slope, and rehabilitation of Meewasin Trail and Saskatchewan Crescent. Restoration costs have been between $1.5 million and $3.0 million per project, with an average of one project every three.

The 2017 capital budget of $1.0 million includes monitoring costs, slope modelling, sub-drainage assessment, and rehabilitation of priority sub-drainage between 15th Street and 16th Street.

Projected capital budgets after 2017 annually include continued monitoring, improving storm water drainage along the riverbank, and setting up a reserve fund of $3.0 million for emergency repair of strategic infrastructure. The future capital costs for riverbank remediation projects will depend on rainfall levels, groundwater, and unpredictable slope failure.

Storm Sewers Trunks and Collection (1619)

Between 2012 and 2016, about $874,000 was spent annually on capital for network and drainage improvement projects, and preservation. Capacity improvement includes design and construction to enhance drainage in areas with recurrent flooding. The preservation program includes storm water sewer sediment removal, CCTV (camera) inspections and assessment of the storm water infrastructure, and lining of priority storm pipes to extend their life.

The 2017 storm sewers capital budget of $1.1 million includes $750,000 for the network management and capacity improvement and $370,000 for the preservation program. An additional $540,000 in capital funding was carried over from 2016 for preservation work which will fund the replacement of storm water pipes that have failed. The budget also includes the storm sewer flushing and CCTV work conducted by City crews and contractors. The condition assessment work is critical to develop a long-term maintenance and preservation program for the sewer pipes. Funding after 2018 anticipates increased preservation work to address the asset management backlog.

Storm Sewer Pond Preservation (1621)

Between 2012 and 2016, average annual capital spending for storm water ponds has been $84,000, which has included evaluation, planning, design, and small preservation projects, such as pond retaining wall restoration.

The 2017 storm water retention pond budget of $125,000 provides for high level assessments and prioritization of storm ponds for future rehabilitation. The capital budget for storm pond preservation is projected to increase to cover higher expected costs as our storm ponds age. The budget anticipates a larger scale pond remediation project in 2022. Increased funding for ongoing maintenance and preservation is expected to reduce higher cost future rebuilds. [19]

Storm Water Utility Billing and Management (1677)

Between 2012 and 2016, average costs for storm water utility billing and management was $49,000. The project includes modifications to the corporate billing system to update billing for storm water management charges based on property size and surface imperviousness.

[19] CH2M HILL Canada Limited presentation to City of Saskatoon estimated the average future construction costs for remediation (not including rebuilds) of 11 Calgary storm ponds to be $1.75 million. The cost to rebuild a Calgary storm pond was estimated to be over $6 million. (October 2016)

The 2017 capital budget is $78,000 for salaries, updated maps, and software with an annual increase of 2.5% projected for inflation and growth. The annual project budget is about $100,000 less than the previous average five-year annual budget, as funding is re-directed to higher priorities for maintaining the storm water system.

Wet Weather Inflow Remediation (1678)
This capital project has been funding through the Flood Protection Program levy described above. Since 2005, the program has been part of Wastewater's capital budget. The project funds the evaluation, development, and implementation of programs to mitigate basement and wastewater system flooding associated with wet weather inflow and infiltration (e.g. superpipes in neighbourhoods at risk of sewer back-ups.)

Extended funding will fund the $300,000 deficit expected in 2018, a superpipe for the Rosewood neighbourhood in 2020, and further risk assessments.

11.4 Funding Strategy

It is recommended that the FPP be extended and phased out from 2019 to the end of 2021, with an equivalent increase to the Storm Water ERU phased in. The extension of the FPP will provide $6 million over three years to allow for additional capital projects to reduce the risk of sewer back-ups and other flooding during high rain events. Advantages to this approach include the following:

- Total residential Utility Bills for storm water and flood protection remain the same from 2012 to 2022 at $107 annually.
- Residential charges for storm water drainage will continue to be significantly lower than in Regina, Calgary, and Edmonton (e.g. in 2017, Regina's minimum annual storm drainage charge for a single residential property is $190).
- Utility Bills are simplified by 2022 when the FPP is eliminated.
- The user-pay principle for drainage is enhanced as large commercial properties that contribute to more drainage pay a more proportionate share.
- The increase for all commercial properties will be phased in over four years to avoid significant increases in a single year.
- The current FPP expected deficit of $0.3 million will be funded.
- Annual funding to maintain and preserve Storm Water drainage will increase to an estimated $10.2 million in 2019 and to $12.3 million in 2022 to help fund infrastructure to reduce the risk of sewer back-ups during flooding and to reduce the backlog in existing infrastructure maintenance and preservation.
- Extending and phasing out the FPP in conjunction with increasing the ERU rate would add approximately $6.0 million more over three years compared to only increasing the ERU rate.

Residents would not see an expected overall decrease in their Utility Bill as the FPP is wound down. Commercial, industrial, and institutional customers would pay between $54 and $5,346 more in 2022 than they would pay without any changes, with a maximum increase of 25.6% per year.

Year	Annual Rate per ERU	Annual FPP Levy per Meter	Residential Annual Total Charge	Minimum Annual Cost for Commercial (1 Meter / 2 ERUs)	Maximum Annual Cost for Commercial (1 Meter / 100 ERUs)	Total Estimated Revenue
2018	$ 52.80	$ 54.00	$ 106.80	$ 159.60	$ 5,334.00	$10,388,904
2019	$ 66.30	$ 40.50	$ 106.80	$ 173.10	$ 6,670.50	$11,179,745
2020	$ 79.80	$ 27.00	$ 106.80	$ 186.60	$ 8,007.00	$ 11,919,423
2021	$ 93.30	$ 13.50	$ 106.80	$ 200.10	$ 9,343.50	$ 12,789,241
2022	$ 106.80	$ 0.00	$ 106.80	$ 213.60	$ 10,680.00	$ 13,682,475

The following projected financial statements summarize the FPP and Storm Water Utility's revenues, operating expenses, capital expenses, and capital reserve balances with the recommended extension and phase-out of the FPP and increase in the ERU rate.

Projected Financial Statements

	2016	2017	2018	2019	2020	2021	2022
Revenues							
Residential (Status Quo)	$ 3,367,542	$ 3,400,000	$ 3,434,000	$ 3,485,510	$ 3,537,793	$ 3,590,860	$ 3,644,722
Multi-Residential (Status Quo)	$ 683,190	$ 680,000	$ 737,000	$ 748,055	$ 759,276	$ 770,665	$ 782,225
Commercial (Status Quo)	$ 2,056,929	$ 2,129,000	$ 2,189,000	$ 2,221,835	$ 2,255,163	$ 2,288,990	$ 2,323,325
Late Charges	$ 12,272	$ 11,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000
Storm Water Total (Status Quo)	**$ 6,119,933**	**$ 6,220,000**	**$ 6,372,000**	**$ 6,467,400**	**$ 6,564,231**	**$ 6,662,514**	**$ 6,762,272**
Increase in ERUs	$ -	$ -	$ -	$ 1,654,477	$ 3,358,588	$ 5,113,451	$ 6,920,203
Total Revenue from ERUs	**$ 6,119,933**	**$ 6,220,000**	**$ 6,372,000**	**$ 8,121,877**	**$ 9,922,819**	**$ 11,775,965**	**$ 13,682,475**
Proposed FPP Phase-Out (2019 to 2021)	$ 3,899,055	$ 3,957,541	$ 4,016,904	$ 3,057,868	$ 1,996,604	$ 1,013,276	$ -
Total Storm Water & FPP Revenue	**$ 10,018,988**	**$ 10,177,541**	**$ 10,388,904**	**$ 11,179,745**	**$ 11,919,423**	**$ 12,789,241**	**$ 13,682,475**
Operating Expenses							
Operating Expenses (07-300)	$ 376,410	$ 435,900	$ 452,300	$ 471,749	$ 492,034	$ 513,192	$ 535,259
Storm Sewers Maintenance (07-310)	$ 1,804,527	$ 1,939,100	$ 2,018,300	$ 2,105,087	$ 2,195,606	$ 2,290,017	$ 2,388,487
Storm Sewers Drainage (07-320)	$ 814,177	$ 914,300	$ 950,000	$ 990,850	$ 1,033,457	$ 1,077,895	$ 1,124,245
Administration (07-330)	$ 194,820	$ 257,600	$ 263,600	$ 271,508	$ 279,653	$ 288,043	$ 296,684
Operating Expenses Before Interest	**$ 3,189,935**	**$ 3,546,900**	**$ 3,684,200**	**$ 3,839,194**	**$ 4,000,750**	**$ 4,169,146**	**$ 4,344,675**
Interest Expense (Revenue)	$ (24,800)	$ (23,200)	$ (23,500)	$ (23,200)	$ (23,200)	$ (23,200)	$ (23,200)
Operating Expenses Before Transfer to Capital Reserves	**$ 3,165,135**	**$ 3,523,700**	**$ 3,660,700**	**$ 3,815,994**	**$ 3,977,550**	**$ 4,145,946**	**$ 4,321,475**
Transfer to Capital Reserves	$ 2,691,300	$ 2,696,300	$ 2,711,300	$ 7,363,751	$ 7,941,873	$ 8,643,295	$ 9,361,000
Total Operating Budget	**$ 263,498**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Capital Budget							
East Riverbank Stabilization (1493)	$ 3,200,000	$ 1,035,000	$ 1,060,000	$ 1,081,200	$ 1,102,824	$ 1,124,880	$ 1,147,378
Storm Sewers (1619)	$ 1,714,000	$ 1,124,000	$ 1,437,000	$ 3,001,740	$ 4,966,775	$ 5,382,110	$ 6,327,144
Storm Pond Preservation (1621)	$ 350,000	$ 125,000	$ 350,000	$ 457,000	$ 606,121	$ 618,243	$ 1,214,448
Utility Billing Management (1677)	$ 150,000	$ 78,000	$ 80,000	$ 81,600	$ 83,232	$ 84,897	$ 86,595
Drainage Regulation Project (2604)	$ -	$ 62,000	$ 63,000	$ -	$ -	$ -	$ -
Storm Water Capital	**$ 5,414,000**	**$ 2,424,000**	**$ 2,990,000**	**$ 4,621,540**	**$ 6,758,952**	**$ 7,210,131**	**$ 8,775,565**
Wet Weather Inflow Infiltration (1678)	$ 3,899,055	$ 3,957,541	$ 4,016,904	$ 3,057,868	$ 1,996,604	$ 1,013,276	$ -
Total Capital Budget with FPP	**$ 9,313,055**	**$ 6,381,541**	**$ 7,006,904**	**$ 7,679,408**	**$ 8,755,555**	**$ 8,223,407**	**$ 8,775,565**
Capital Reserve Balance							
Reserve Balance Beginning of Year	**$ 3,537,785**	**$ 1,720,852**	**$ 2,034,192**	**$ 1,755,492**	**$ 1,439,835**	**$ 626,153**	**$ 1,046,041**
Contribution from Operating	$ 2,691,300	$ 2,696,300	$ 2,711,300	$ 7,363,751	$ 7,941,873	$ 8,643,295	$ 9,361,000
Capital Budget	$ (5,414,000)	$ (2,424,000)	$ (2,990,000)	$ (7,679,408)	$ (8,755,555)	$ (8,223,407)	$ (8,775,565)
Adjustments	$ 905,767	$ 41,040	$ -	$ -	$ -	$ -	$ -
Reserve End of Year Balance	**$ 1,720,852**	**$ 2,034,192**	**$ 1,755,492**	**$ 1,439,835**	**$ 626,153**	**$ 1,046,041**	**$ 1,631,477**

Projected Financial Statements Assumptions

1. Residential Status Quo Growth: 1% in 2018 and 1.5% from 2019 to 2022
2. Multi-Residential Status Quo Growth: 1% in 2018 and 1.5% from 2019 to 2022
3. Commercial Status Quo Growth: Estimated increase in ERU cap from 85 to 100 in 2018 and 1.5% growth from 2019 to 2022
4. Late Charges: Similar to actual late charge revenue from 2018 to 2022 as in 2016
5. Increase in ERUs: ERU rate is $52.80 in 2018, $66.30 in 2019, $79.80 in 2020, $93,30 in 2021, and $106.80 in 2022
6. Proposed FPP Extension and Phase-Out: FPP rate per water meter is $54.00 in 2018, is $40.50 in 2019, $27.00 in 2020, $13.50 in 2021 and $0 in 2022. Note that the FPP Revenue has not previously been part of the Storm Water Utility budget, and is shown in the proformas from 2016 to 2018 for comparative purposes.
7. Operating Expenses: Includes expenses for Stormater engineering and inspections. 2018 includes preliminary budget with inflation and a $7,500 increase for communication. Increase of 4.3% from 2019 to 2022 to include growth (1.5%) and inflation (2.8%).
8. Storm Sewers Maintanence: Includes expenses for Water and Waste Stream. Assumes 2018 preliminary budget and increase of 4.3% from 2019 to 2022.
9. Storm Sewers Drainage: Includes expenses for Transportation and Operations. Assumes 2018 preliminary budget and increase of 4.3% from 2019 to 2022.
10. Administration Expenses: Includes billing services, administration cross charges and insurance. Assumes 2018 preliminary budget and 3.0% annual growth including inflation.
11. Interest Revenue: 2018 to 2022 is estimated to be similar to previos years.
12. Transfer to Capital Budget: Difference between budgeted revenues and other operating expenses.
13. East Riverbank Stabilization capital budget: Assumes similar average funding for monitoring and slope stabilization as previous years, with unspent capital returned to the Capital Reserve to maintain a reserve balance of $3.0 million to fund unanticipated emergency slope failures impacting strategic infrastructure. Assumes 2.0% annual inflation.
14. Storm Sewers capital budget: Assumes 2.0% inflation for monitoring, CCTV work, capital required by Water and Waste Stream, lift station preservation, and monitoring equipment. Assumes additional funding from the ERU rate increase for lining and preserving the existing network including Montgomery ($1.75 million increase in 2019, up to $4.1 million increase in 2022).
15. Storm Pond Preservation capital budget: Assumes additional funding for sediment removal and preservation as the storm ponds age. Additional funding of $0.1 million in 2019 up to $1.0 million more in 2022 for a major pond dredging.
16. Storm Water Utility Billing and Management capital budget: Assumes 2% annual inflation.
17. Drainage Regulation Project: Includes total commitment of $0.125 million over 2017 and 2018. Assumes sources other than the Storm Water Utility will fund future implementation.
18. Wet Weather Inflow Remediation capital budget is the same as the Flood Protection Program (FPP) revenue. It is noted that the FPP capital expenses have not previously been part of the Storm Water Utility budget.

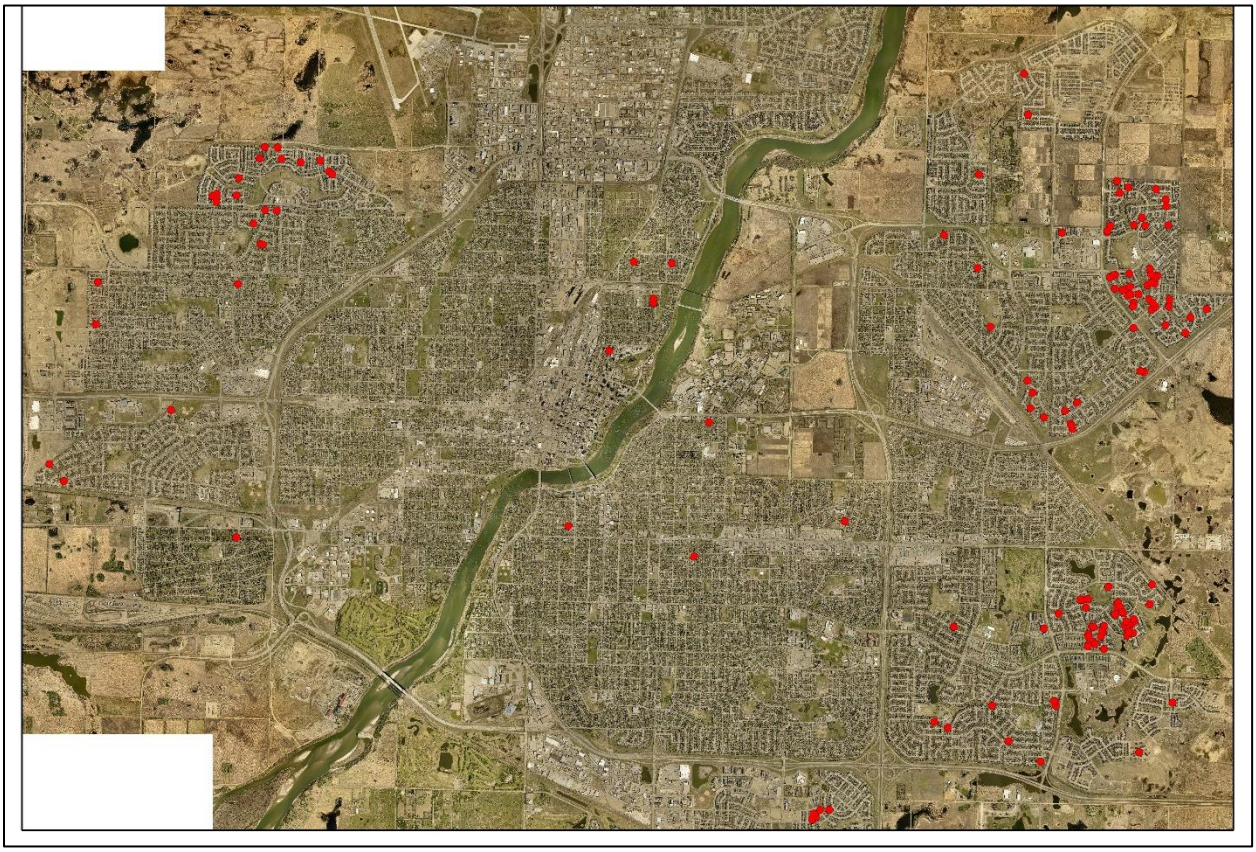
APPENDICES

Appendix #1: Criteria for Determining Return Period of a Rain Event

Time (minutes)	Intensity (mm/hr)			
	2-Year	5-Year	25-Year	100-Year
10	53	85	132	168
15	41	67	104	133
30	26.4	46.1	74	97
60	16.6	28.9	46.5	60
120	10.7	17.5	27.3	35
360	4.7	7.0	10.3	12.9
720	2.73	3.90	5.59	6.91
1440	1.56	2.18	3.07	3.76

The Intensity Duration Frequency (IDF) curves being used by the City are based on rainfall recorded at the Saskatoon International Airport by Environment Canada from 1926 to 1986.

Appendix #2: Locations with High Ground Water and Sump Pump Issues



City of Saskatoon, 2015

Appendix #3: Glossary

Abate: To reduce the amount or lessen the effect of.

Backflow Device: A backflow device or backflow valve is a device that prevents sewage from backing up into basements.

Capital Reserve: Funding that is reserved for long-term infrastructure projects to be undertaken in the future.

Catch Basin: A reservoir located at the point where street gutters discharge into a sewer. These are designed to catch matter that will not pass through the sewer.

Cross Connections: A point where the sanitary and storm sewers are connected and can overflow into one another.

Culvert: A pipe or channel to allow drainage to flow under a road, sidewalk, railroad, or similar obstruction.

Drop Structure: A device used in sanitary sewer collection systems to drop wastewater at a level in the manhole so that maintenance can be conducted during flow.

Dry Ponds: Storm water basins that temporarily store water during and after heavy rainfall events then slowly release the water and return to a dry state.

Effluent: Treated water discharged back into the river.

Force Main: Sewer pipes that utilize compressors or pumps to move liquid under pressure when the liquid cannot be moved with the use of gravity.

Imperviousness: Ability of a material (e.g. soil, pavement) to not allow fluid to pass through.

Infill (Development): Development of land within already developed areas.

Infiltration: Groundwater seeping into sanitary sewers through cracks and crevices such as defective pipe joints and broken pipes.

Inflow: Water flowing into the sanitary sewer through large openings such as cross connections and weeping tile.

Leads: Piping that connects the main sewer line to other infrastructure such as catch basins.

Lift Station: Facility designed to move wastewater or storm water from lower to higher elevations with pumps.

Outfall: A place where a sewer discharges to a body of water such as river or lake.

Return Period: The estimate of the likelihood of a rainfall event. A two-year rain event would have a 50% likelihood of occurring in any given year. A five-year rain event would have a 20% likelihood of occurring in any year.

Service Connection: The point of connection between the municipal sewer system and the customer's system.

Sub-drainage: Typically perforated pipe used to drain groundwater and seepage.

Sump Pump: A pump used to remove water that has accumulated in the water-collecting sump basin in basements.

Superpipe: A large sanitary storage tank to handle surcharged wastewater.

Weeping Tile: A porous pipe used to collect and discharge groundwater from the base of a footing.

Wet Ponds: Storage basins that permanently hold water throughout the year.

Storm Water Infrastructure Capacity Expansion Option

Introduction

Many areas throughout Saskatoon experience surface flooding during severe storms. In 2014, 30 known flood sites were modelled and prioritized for flood risk based on set criteria:

- Risk of surface water reaching the property and the building
- Classification of roadway affected
- Number of properties potentially affected

The following areas were identified as the highest ranking sites based on modelling and were examined in more detail to provide high level costs for improvements:[1]

1. Ruth/Cairns
2. First Street/Dufferin Avenue
3. Cascade Street/Dufferin Avenue

Based on testing of several options for each site, a capital infrastructure solution, using local ponds and increased pipe sizes, was identified as the preferred option to minimize flooding. Flood wall installation would be considerably less expensive, but is not effective in some cases and community engagement deemed these to be less desirable than the other infrastructure-based improvements.

The cost to reduce the risk for flood water reaching within three meters of 130 houses[2] in the top three high risk areas for a "1-in-10 year" rain event was estimated to be $17.3 million in 2014, and with inflation, is estimated to be $18.9 million in 2017 or an average of $6.3 million per area, and $141,000 per property protected to within three meters.

A decision to implement capital improvements to reduce the risk of flooding should consider economic factors and non-economic factors, particularly quality of life. Once the City's direction is determined and communicated, citizens living in at-risk areas can make more informed decisions about any actions they need to take to flood-proof their properties.

[1] Ruth-Cairns had no known PDAP claims from 2010 to 2016.
[2] More detailed modelling indicates 134 properties could benefit.

Provincial Disaster Assistance Claims

Between 2005 and 2016, the Provincial Government Disaster Assistance Program (PDAP) [3] paid approximately 256 claims for non-insurable surface flooding from severe rain events valued at about $1.4 million ($2017).[4]

More detailed information available from the 2010 to 2016 PDAP surface floods claims in Saskatoon identified the following:

- About 24% (208 out of 880) of total flood claims were due to surface flooding from rainwater flowing overland (i.e. through doorways, windows, ventilation openings, permeable brickwork, etc.) The value of surface flood claims was about 22% of the total non-insurable flood claim damage in Saskatoon ($1.0M of $4.8M total). The majority of flood claims were from seepage (high groundwater as a result of a severe rain event seeping through drains or cracks in basement walls).
- Flooding occurs in areas throughout Saskatoon. The 208 claims were in 175 postal code areas.
- Most flooding is relatively localized to the low spots within neighbourhoods. Postal code areas have an average of 19 houses, but of the 175 postal code areas with surface flood claims, only four had more than three claims.
- The PDAP surface flood claims ranged in value from $500 to $23,000, and averaged about $5,500 per claim.
- Ten postal code areas had claims totalling more than $20,000.
- The postal code area with the highest total claim value was in the Central Business District (approximately $34,000). Postal codes areas in the City Park, Westview, Varsity View, Lakeview, Confederation, and Stonebridge also had claims of more than $20,000.

Of the 30 modelled flood risk zones, 17 zones had PDAP claims (53 claims totaling about $292,000 in 2010 to 2016). Claims in these 17 zones represented about 25% of all surface flood PDAP claims and about 28% of the total value of claims in 2010 to 2016. Average claim damage in flood risk zones is slighter higher than the average for all claims. Five postal code areas in the Confederation / Laurier vicinity represented about 7.5% of surface flood claims (15 claims totalling $80,000).

[3] PDAP assists eligible property owners recover from the effects of natural disasters, such as flooding, by covering loss to uninsurable, essential property (PDAP does not cover damage caused by sanitary sewer backups). PDAP contributes up to $240,000 per home towards seepage or surface flooding damage from an identifiable storm event. A deductible of 5% is payable by the property owner for principal residences. Eligibility is being reviewed because private insurance for surface flooding was introduced in 2016.

[4] Interviews with claimants indicated no surface flooding in 2005. Surface flooding in 2007 was extrapolated at 24% of claims - the percentage of surface flood claims from 2010 to 2016. There were no flood claims in 2006, 2008, 2009, 2015 or 2016. Claims were inflated at 2.5% per year to estimate 2017 current dollars.

Benefit/Cost Assessment

Benefits

The most important benefit of reducing flooding risk is the increased quality of life for residents living in risk areas by reducing the stress related to both actual and potential flooding. Any reduction in time that citizens expend in dealing with flooding and repairs is also beneficial.

The economic value of benefits from reducing surface water flooding and resulting damage is complex to estimate because assumptions must be made about when intense rain events will occur, the intensity of these storms, and the resultant damage. Each storm event's impact is different. The damage is partly dependent on elevations and the actions that citizens have taken to flood-proof their properties.

The following summarizes the best estimates of economic benefits associated with reducing flood risk in the top three high risk areas:

- Based on PDAP flood claims from 2007 to 2016, about $64,000 ($2017) in actual total surface flood damage could have been prevented in the three areas over the last 10 years (nine claims).[5]
- Modelling of a worst case scenario over 10 years for 130 properties with average flood damage of $12,200 per property estimates damage of up to $1.64 million over 10 years (26 times the amount of average actual damage of $491 per property recorded over the last 10 years).[6]
- Reducing flood risk could increase the value of properties in affected areas.

The financial benefits of making improvements to reduce flooding would mainly flow to the provincial PDAP program which has covered 95% of uninsurable surface flood damage if it continues. In 2016, private sector surface flood insurance became available in Saskatchewan, so reducing risk could also reduce costs for insurance companies. Saskatoon and other Saskatchewan municipalities are not legally liable for surface flood damages to private properties unless there is negligence.

Costs

- The cost to reduce the risk for flood water reaching within three meters of 130 houses[7] in the top three high risk areas for a 1-in-10 year rain event was estimated to be $17.3 million in 2014. Using an estimated municipal inflation rate of 3%, the cost is estimated to be $18.9 million in 2017 or an average of $6.3 million per area.[8]

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[5] Assumptions include $44,173 actual claims paid from 2010 to 2016 in the three risk areas; assumed additional claims in 2007 valued at 11.5% of 2010 to 2016 claims, inflation at 3% annually (10 years for 2007 claims and 7 years for 2010 - 2016 claims); all claims grossed up from 95% to 100%. No PDAP claims for surface flood damage in 2005 or 2006 were made. Some of the nine claims may have been for the same property which experienced more than one flooding incident over the ten years.

[6] Assumptions are based on 130 houses.

[7] More detailed modelling indicates 134 properties could benefit.

[8] Edmonton invested $384 million to reduce flooding in 64 neighbourhoods since 2004 (an average of $6.0 million per neighbourhood prior to inflation).

- The cost to reduce the risk of flooding in a 1-in-10 year rain event ranges from about $80,000 per house at Ruth-Cairns to $264,000 per house at Cascade-Dufferin.
- Increasing capacity in these areas could set a precedent for other areas. The average cost per property in areas where fewer properties are impacted is likely to be significantly more.
- Park space currently used for recreation (e.g. soccer) could be converted to a dry storm water pond, and continue to be used for recreation, although potentially at a diminished level.
- Funding the capital program will increase costs for Saskatoon citizens and businesses. Alternatively, if funding is redirected from other storm water programs such as asset preservation, the longer term costs could be significantly higher.

The economic payback period to remediate all three high risk flood areas based on modelling would be, at best, about 115 years based on worst case flood damage of $1.64 million every ten years as indicated above.[9]

If a decision is made to fund large-scale capital projects to reduce the risk of flooding in high risk areas, the first area that is recommended to be remediated is First Street/ Dufferin Avenue because of the following:

- Has experienced the highest number (five) and value ($41,000[10]) of surface flood claims (Ruth/Cairns has no documented surface flood claims over the last ten years).
- Has the shortest payback period (68 years) based on modelling for worst case flooding (Cascade/Dufferin is 173 years).
- Has the lowest overall estimated capital cost ($3.8 million versus $10.8 million for Cascade/Dufferin) which could be funded in 2018 through reallocating funding from the capital reserve, riverbank stabilization, and asset preservation.
- Has a below average cost per property protected based on modelling for worst case of flooding ($106,000 compared to $80,000 for Ruth/Cairns and $264,000 for Cascade/Dufferin).

Although solution costs have not been researched for the other at-risk areas, if the cost per area were to be a similar order of magnitude and average $6.3 million per area, the extrapolated cost for the 30 modelled at-risk areas could range up to $189 million.

[9] Economic payback period is the amount of time it would take for economic benefits (flood damage prevented) to equal the economic costs. The costs are based on capital costs only and assume no increased costs for annual maintenance.
[10] Inflated to $2017 at 3% annually and grossed up from 95% to 100%.

Neighbourhood Improvement Levy Option

Saskatoon's 1994 Local Improvement Program (Bylaw 5257 *The Local Improvement Procedure* Bylaw) allows for Neighbourhood Improvement Levies to be collected. [11] If a decision is made to expand the capacity of the storm water network in the three modelled at-risk areas, a $600 annual levy for the 134 modelled properties that would benefit from increased storm water capacity would generate $804,000 over 10 years.

The main advantage to a levy would be the additional revenue and cost sharing for new infrastructure. Some residents who are at greatest risk of flooding would likely support the levy because reduced flood risk would improve their quality of life and increase the value of their property. The City's cost of providing higher service levels for storm water infrastructure in new neighbourhoods is passed on to property owners in the form of development levies.

Other considerations include the following:

- Neighbourhood Improvement Levies require that a majority of impacted property owners support the levies.
- The cost may be considered high relative to the cost property owners incurred over the last 10 years (93% of the 134 properties incurred no damage, and others with damage could have recouped 95% of the damage from PDAP).
- Some property owners have already made significant investments to make their properties resilient to flooding, and therefore they may be opposed to contributing financially to reduce flood damage in the area.
- The cost may be considered high relative to the additional cost of surface flood insurance of about $100 per year when added to other property insurance (surface flood insurance became available in Saskatchewan in 2016.)
- The revenue generated would be less than 5% of the estimated capital cost. The cost of managing, billing and collecting the levies would be high relative to the revenue generated.
- Neighbourhood Improvement Levies have not been implemented in Saskatoon for several years. Other infrastructure improvements that primarily benefit specific areas have been funded through general revenues.
- Adding a new fixed annual cost may reduce the quality of life for some residents, particularly fixed income residents who may be required to make difficult decisions to adapt to the higher costs.

[11] Assessing Owners' Share District Storm Sewers 16) In assessing the owner's share of the cost of construction of a district storm sewer, the said rate shall be specially assessed upon: (a) the land directly abutting upon the work; (b) the land not abutting directly on the work but deemed by Council to be benefitted thereby.

East Riverbank Stabilization Funding Option

Reserve funding of $3.0 million is recommended to fund unexpected riverbank slope failures that put strategic public infrastructure including bridges, Saskatchewan Crescent and Meewasin Trail at risk. Since 2012, the Storm Water Utility funded approximately over $1.0 million annually for East Riverbank monitoring and stabilization. Based on recent projects, slope and roadway restoration costs range from about $1.5 million to $3.0 million per project.

Responses to a survey sent to municipalities in 2016 indicated that riverbank stabilization is commonly funded by property taxes (e.g. Kelowna, Red Deer, Barrie, Markham), with provincial grants sometimes being available in British Columbia. Abbotsford was the only municipality responding that indicated use of their storm drainage fee to fund riverbank stabilization.

The Government of Saskatchewan will consider emergency funding through PDAP for municipal infrastructure that is damaged during a severe storm event but will not fund repairs due to the high groundwater levels which have recently triggered Saskatoon's riverbank slumping. No other provincial program funding currently is available for riverbank remediation.

If the City of Saskatoon were to fund the projected average $1.0 million for annual riverbank monitoring and stabilization costs through property taxes, a tax increase of 0.5% would be needed.
Considerations for funding riverbank stability through the mill rate include the following:

Advantages

- The current funding for storm water management charges is based on a user pay principle for the run-off generated to our storm water system. The riverbank instability is not caused by the storm water run-off.
- More funding from the Storm Water Management revenue would be available to use to maintain and preserve storm water infrastructure and improve drainage.
- Decisions to remediate Saskatchewan Crescent and Meewasin Trail would be evaluated against remediating other roadways and sidewalks throughout the City and would be based on priorities and available infrastructure funding.

Disadvantages

- Slope stability is unpredictable and can happen quickly. Continued Storm Water Utility funding may provide more flexibility to fix the slumping more quickly which could reduce costs for taxpayers in the future.
- Saskatchewan Crescent and Meewasin Trail along the East Riverbank have a strategic importance that many residents throughout the City value. Remediation may not be completed as quickly if funding is competing against other planned infrastructure projects.

- A reduction in provincial contributions to the City has put pressures on property taxes, which makes adding additional expenses to the mill rate more difficult to absorb.
- Slope stability is impacted by rainfall and resulting groundwater levels, which can be considered part of storm water responsibilities.